Interim Seismic Retrofit-East Bay Cantilever Truss (Contract No. 04-043004)

The as-built drawings, which are contained in these CDs, are scanned from drawings of the existing structure for the convenience of the contractor and as a means to convey to the contractor the available information regarding the existing structure. It is to be understood that no claim is being made as to the accuracy or completeness of the said information and that the State of California or its officers or agents shall not be responsible for the manner in which the contractor interprets and uses this information or for the accuracy, currency or completeness of these scanned as-built drawings. The contractor shall be responsible to obtain, at the contractor's expense, any additional information that the contractor deems necessary for completely and accurately assessing the existing conditions of the structure. The contractor shall not be entitled to any compensation for any claim arising from inaccuracy or insufficiency of these as-built drawings or in anyway related to these drawings.

105.General Plan No. 1
106.General Plan No. 2
107.Index to Plans
108.Floor Beam Details No. 1
109.Floor Beam Details No. 2
110.Floor Beam Details No. 3
111.Floor Beam Details No. 4
112.Floor Beam Details No. 5
113.Piers E2, E3 Details No. 1
114.Piers E2, E3 Details No2
115.Pier E4 Details No. 1
116.Pier E4 Details No. 2
117.Pier E4 Details No. 3
118.Pier E4 Details No. 4
119.Pier E4 Details No. 5
120.Pier E4 Bumper Details No. 1
121.Pier E4 Bumper Details No. 2
122.Pier E4 Bumper Details No. 3

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	SF, Ala	80	7.8/8.9. 0.0/1.1	105	205

James S. MacIntyre
REGISTERED ENGINEER - CIVIL
October 22, 1997

J. MACINTYRE No. C 47564 Exp. 12-31-98 CIVIL STATE OF CALIFORNIA

12-8-97
PLANS APPROVAL DATE

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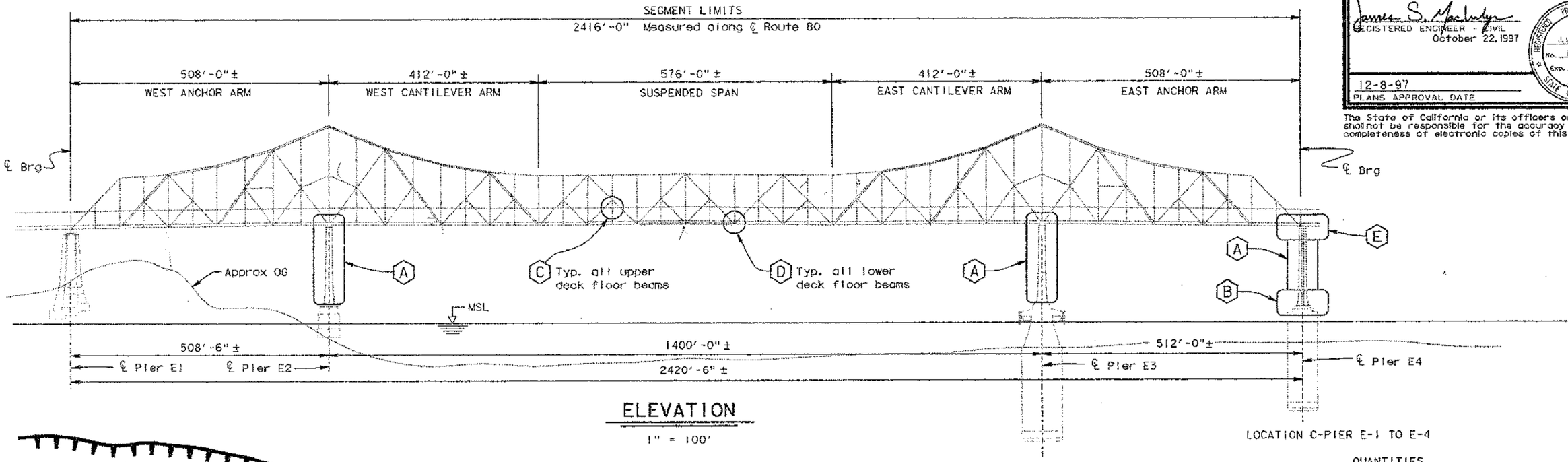
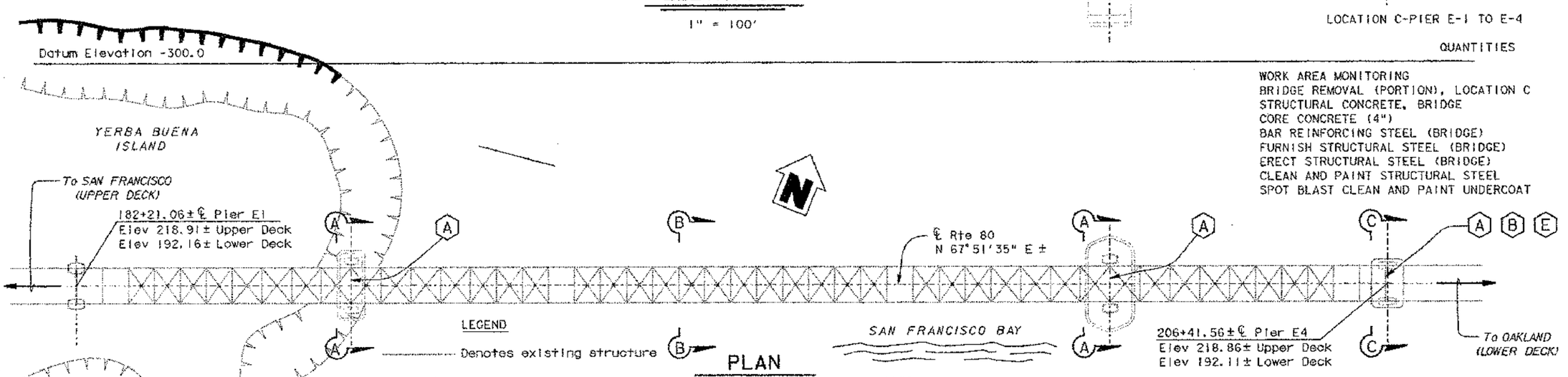


ELEVATION

1" = 100'

LOCATION C-PIER E-1 TO E-4



PLAN

1" = 100'

LEGEND

Denotes existing structure

A Tower Connection Retrofit

B Base of Tower Anchor Bolt Retrofit

C Upper deck floor beam connection retrofit

D Lower deck floor beam connection retrofit

E Tower Bumper

Denotes new construction

NOTES:

1. For Sections A-A, B-B and C-C see "GENERAL PLAN NO. 2" sheet.
2. For General Notes see "INDEX TO PLANS" sheet.

NOTE:
THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

QUANTITIES

WORK AREA MONITORING	LUMP SUM
BRIDGE REMOVAL (PORTION), LOCATION C	LUMP SUM
STRUCTURAL CONCRETE, BRIDGE	8 CY
CORE CONCRETE (4")	352 LF
BAR REINFORCING STEEL (BRIDGE)	1,750 LB
FURNISH STRUCTURAL STEEL (BRIDGE)	63,800 LB
ERECT STRUCTURAL STEEL (BRIDGE)	63,800 LB
CLEAN AND PAINT STRUCTURAL STEEL	LUMP SUM
SPOT BLAST CLEAN AND PAINT UNDERCOAT	1,690 SQFT

INTERIM SEISMIC RETROFIT PROJECT
EAST BAY CANTILEVER TRUSS
SAN FRANCISCO-OAKLAND BAY BRIDGE
GENERAL PLAN NO. 1

Ray Zelinski
DESIGN ENGINEER

	BY	CHECKED		BY	CHECKED
DESIGN	J. MACINTYRE 4-97	J. SUNDSTROM 5-97			
DETAILS	D.A. SANDERSON 4-97	J. SUNDSTROM 5-97	LAYOUT	J. MACINTYRE 4-97	J. SUNDSTROM 5-97
QUANTITIES	BY	CHECKED	SPECIFICATIONS	BY	PLANS AND SPECS COMPARED

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF STRUCTURES
STRUCTURE DESIGN
TOLL BRIDGE SPECIAL ANALYSIS

CU 04
EA 04300J

BRIDGE NO. 33-0025
POST MILE 1.1/5

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES (PRELIMINARY STAGE ONLY)
4-30-97 | 5-16-97 | 5-29-97 | 5-29-97 | 5-6-97 | 6-20-97 | 6-20-97 | 10-2-97

SHEET 1 OF 18

05 OSD 2034 (CAD 2/95)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

USERNAME => tmikesl

DATE PLOTTED => 9-Dec-1997
TIME PLOTTED => 08:31

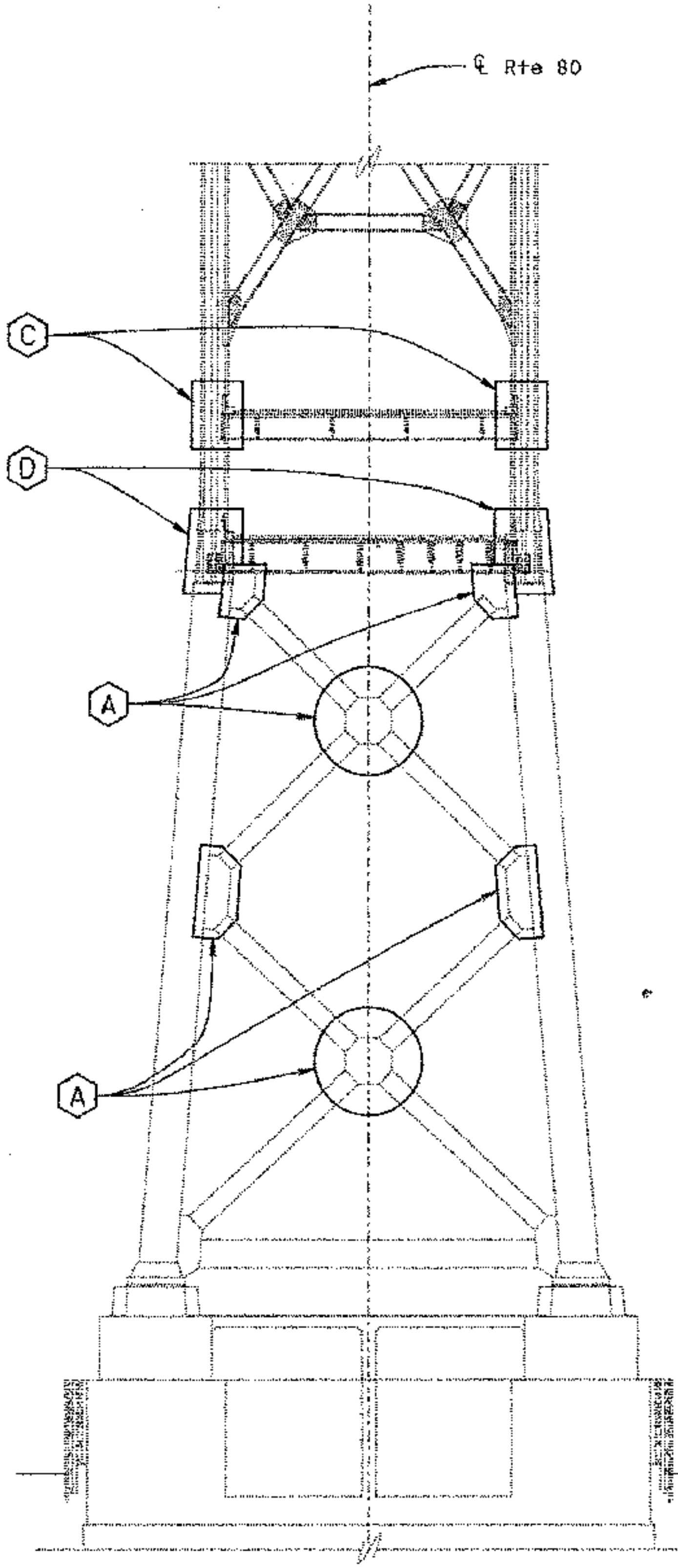
DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	SF, Ala	80	7.8/8.9, 0.0/1.1	106	205

REGISTERED ENGINEER - CIVIL
October 22, 1997

12-8-97
PLANS APPROVAL DATE

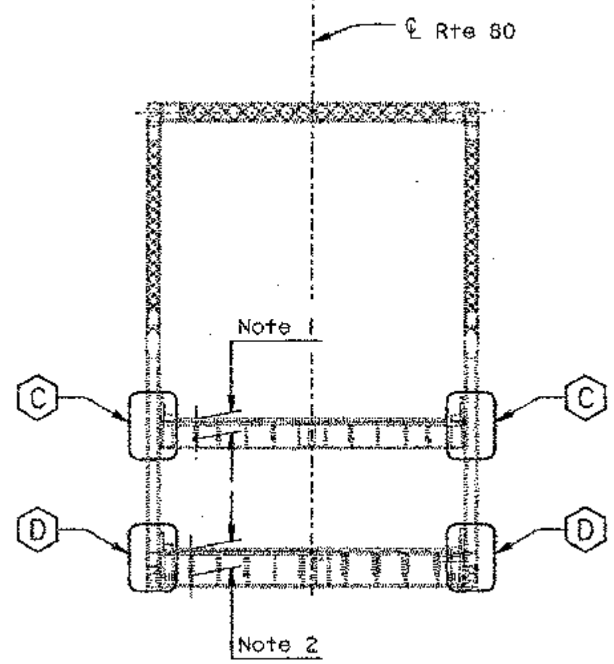
REGISTERED PROFESSIONAL ENGINEER — J. MACINTYRE — No. C 47564 — Exp. 12-31-99 — CIVIL — STATE OF CALIFORNIA

The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.



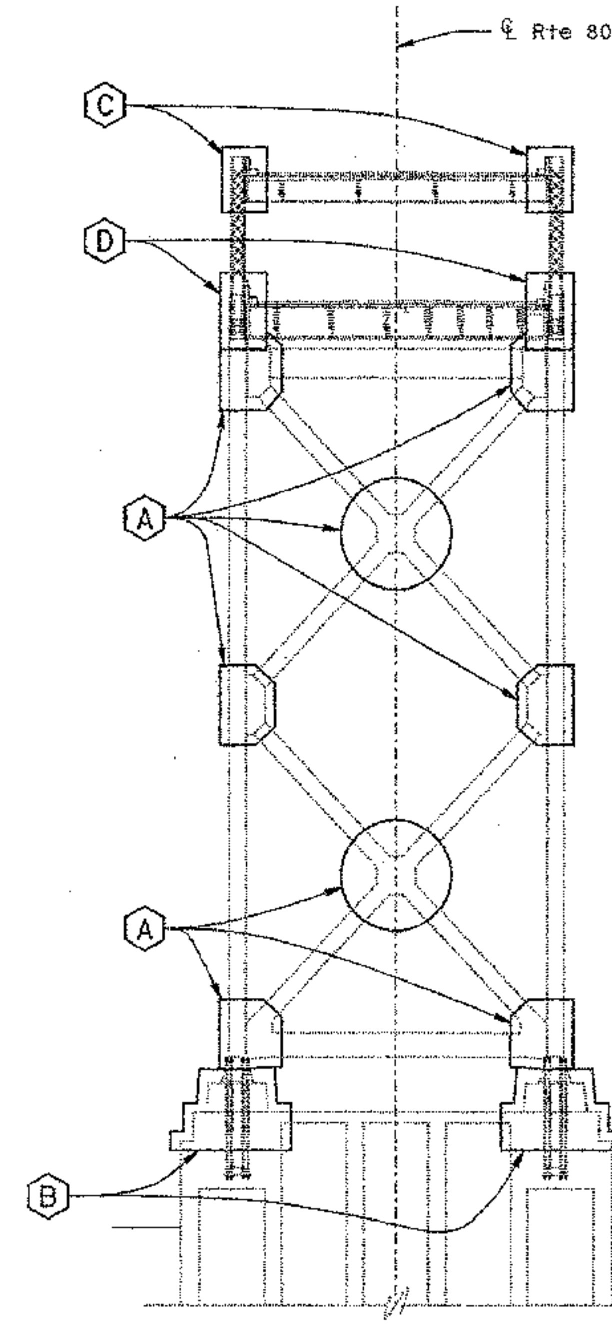
SECTION A-A

1" = 20'



SECTION B-B

1" = 20'



SECTION C-C

1" = 20'

LEGEND

Denotes existing structure

(A) Tower Connection Retrofit

(B) Base of Tower Anchor Bolt Retrofit

(C) Upper Deck Floor Beam Connection Retrofit

(D) Lower Deck Floor Beam Connection Retrofit

(E) Tower Bumper

Notes:

1. 4'-2 ½"± - Top of upper deck to bottom of north exterior stringer.
2. 5'-6"± - Top of lower deck to bottom of north exterior stringer.
3. For limits of floor beam retrofit type (C) and (D) see "General Plan No. 1" sheet.
4. For location of Section A-A, B-B and C-C see "General Plan No. 1" sheet.

NOTE:
THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

DATE PLOTTED => 9-Dec-1997
TIME PLOTTED => 08:32

INTERIM SEISMIC RETROFIT PROJECT
EAST BAY CANTILEVER TRUSS
SAN FRANCISCO-OAKLAND BAY BRIDGE
GENERAL PLAN NO. 2

DESIGN ENGINEER

	BY	CHECKED
DESIGN	J. MACINTYRE 4-97	J. SUNDSTROM 5-97
DETAILS	D.A. SANDERSON 4-97	J. SUNDSTROM 5-97
QUANTITIES	P. WATZ 5-97	J. SIEMERS/J. MACINTYRE 5-97
LAYOUT	J. MACINTYRE 4-97	J. SUNDSTROM 5-97
SPECIFICATIONS		PLANS AND SPECS COMPARED

DS OSD 2036 (CADD 3/95)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF STRUCTURES
STRUCTURE DESIGN
TOLL BRIDGE SPECIAL ANALYSIS

CU 04
EA 043001

BRIDGE NO. 33-0025
POST MILE 1.15

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES (PRELIMINARY STAGE ONLY): 5-10-97, 5-16-97, 5-19-97, 5-23-97, 6-9-97, 6-23-97, 6-26-97

SHEET 2 OF 18

USERNAME => trmikesl

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	SF, Ala	80	7.8/8.9, 0.0/1.1	107	205

REGISTERED ENGINEER - CIVIL
October 22, 1997

REGISTERED PROFESSIONAL ENGINEER — J. MACINTYRE — No. C 47564 — Exp. 12-31-99 — CIVIL — STATE OF CALIFORNIA

12-8-97
PLANS APPROVAL DATE

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GENERAL NOTES
LOAD AND RESISTANCE FACTOR DESIGN

DESIGN:	1994 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS AND SAN FRANCISCO-OAKLAND BAY BRIDGE WEST SPAN SEISMIC RETROFIT DESIGN CRITERIA
REINFORCED CONCRETE: (NEW)	GRADE 60 ASTM A706 f_y = 60,000 psi f'_c = 4,000 psi
REINFORCED CONCRETE: (EXISTING)	f_y = 33,000 psi f'_c = 5,000 psi
STRUCTURAL STEEL (NEW)	ASTM A36 UNLESS OTHERWISE NOTED f_y = 36,000 psi
STRUCTURAL STEEL (EXISTING)	MEDIUM CARBON STEEL f_y = 37,000 psi f_u = 62,000 psi SILICON STEEL f_y = 45,000 psi f_u = 80,000 psi NICKEL STEEL f_y = 55,000 psi f_u = 90,000 psi
ANCHOR BOLTS	ASTM F1554 GRADE 36 UNLESS OTHERWISE NOTED
HIGH STRENGTH BOLTS	ASTM A325 UNLESS OTHERWISE NOTED
HIGH STRENGTH THREADED RODS	ASTM A354 GRADE BD UNLESS OTHERWISE NOTED
WELDS	E70XX UNLESS OTHERWISE NOTED

GENERAL NOTES

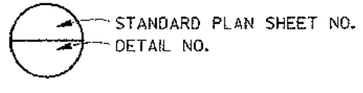
1. All new connection bolts shall be high strength bolts and shall conform to ASTM A325 bearing type unless otherwise noted in the plans. All high strength bolts in standard size holes shall be furnished with one washer beneath the turning element. All high strength bolts in oversized holes shall be furnished with two hardened washers (conforming to ASTM F436), with one washer beneath the bolt and with one washer beneath the nut. Heads of all bolts shall be on the outside face of the member as practical, unless otherwise noted. Bolt threads shall be excluded from the shear planes.
2. Maintenance platforms and ladders interfering with the new construction and not shown in Road Plans shall be temporarily removed or modified as required and reinstalled as approved by the Engineer.
3. Drain pipes to be removed as required for retrofit and reinstalled as approved by the Engineer.
4. For utilities and highway facilities, such as air, water and electrical utility relocation, see Road Plans.
5. For traffic controls, see Road Plans.
6. "Near Side" of a member or connection in the plans refers to the side shown. "Far Side" of a member or connection in the plans refers to the other side of the same member or connection from the side shown.
7. All retrofit construction shown in the plans is symmetrical about centerline of roadway, unless otherwise noted.
8. Anchor bolts to be ASTM F1554 Grade 36.

INDEX TO PLANS

SHEET NO.	TITLE
1.	GENERAL PLAN NO. 1
2.	GENERAL PLAN NO. 2
3.	INDEX TO PLANS
4.	FLOOR BEAM DETAILS NO. 1
5.	FLOOR BEAM DETAILS NO. 2
6.	FLOOR BEAM DETAILS NO. 3
7.	FLOOR BEAM DETAILS NO. 4
8.	FLOOR BEAM DETAILS NO. 5
9.	PIERS E2, E3 DETAILS NO. 1
10.	PIERS E2, E3 DETAILS NO. 2
11.	PIER E4 DETAILS NO. 1
12.	PIER E4 DETAILS NO. 2
13.	PIER E4 DETAILS NO. 3
14.	PIER E4 DETAILS NO. 4
15.	PIER E4 DETAILS NO. 5
16.	PIER E4 BUMPER DETAILS NO. 1
17.	PIER E4 BUMPER DETAILS NO. 2
18.	PIER E4 BUMPER DETAILS NO. 3

STANDARD PLANS DATED JULY 1992

A10A ABBREVIATIONS



NOTE:
THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

DESIGN	BY J. MACINTYRE 4-97	CHECKED J. SUNDSTROM 5-97	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION
DETAILS	BY D.A. SANDERSON 4-97	CHECKED J. SUNDSTROM 5-97	DIVISION OF STRUCTURES STRUCTURE DESIGN TOLL BRIDGE SPECIAL ANALYSIS
QUANTITIES	BY P. WATZ 5-97	CHECKED J. SIEMERS/J. MACINTYRE 5-97	

BRIDGE NO.	33-0025
POST MILE	1.15

INTERIM SEISMIC RETROFIT PROJECT
EAST BAY CANTILEVER TRUSS
SAN FRANCISCO-OAKLAND BAY BRIDGE
INDEX TO PLANS

DS 0SD 2139 (CADD 9/95)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 04
EA 043001

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES (PRELIMINARY STAGE ONLY)
4-0-97 | 5-30-97 | 5-5-97 | 6-27-97 | 6-29-97 | 8-0-97 | 10-0-97

SHEET 3 OF 18

USERNAME => tmikes1
caltp_09080534

DATE PLOTTED => 9-Dec-1997
TIME PLOTTED => 08:33

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	SF, Alg	80	7.8/8.9, 0.0/1.1	108	205

James S. MacIntyre
REGISTERED ENGINEER - CIVIL
October 22, 1997

REGISTERED PROFESSIONAL ENGINEER — J. MACINTYRE — No. C 47564 — Exp. 12-31-99 — CIVIL — STATE OF CALIFORNIA

12-8-97
PLANS APPROVAL DATE

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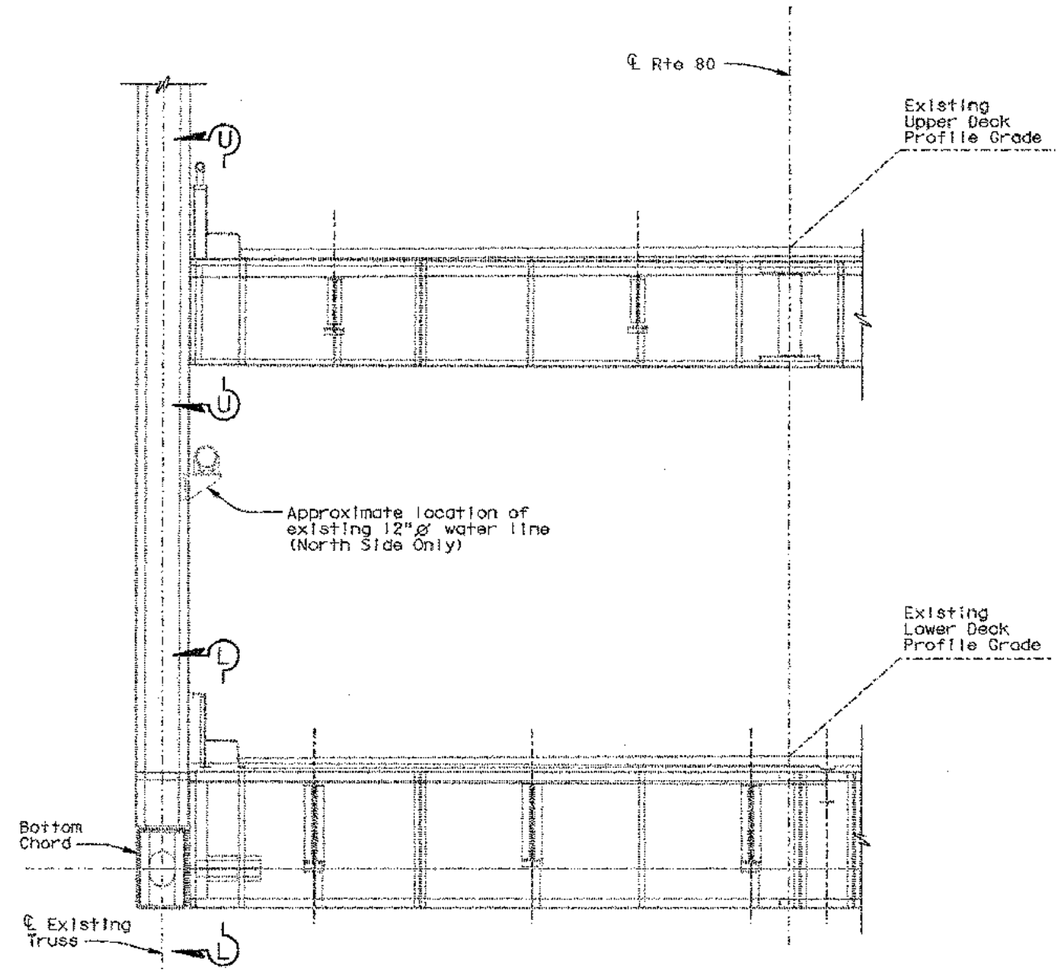


TYPICAL PART ELEVATION

1/4" = 1'-0"

NOTE:

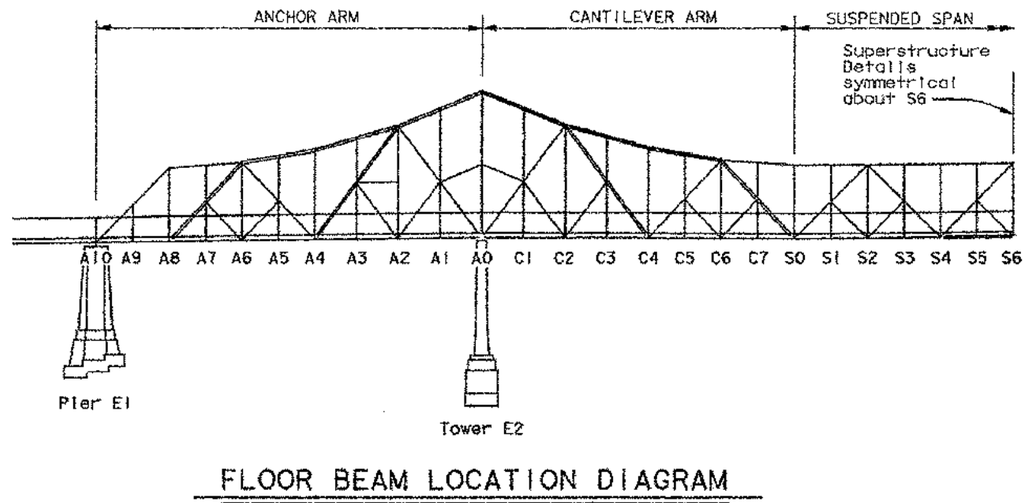
For Sections U-U see "Floor Beam Details No. 2" sheet.

For Sections L-L see "Floor Beam Details No. 3, 4 and 5 sheets.

NOTE:
THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

LEGEND

——— *indicates existing structures.*



FLOOR BEAM LOCATION DIAGRAM

1" = 100'

FLOOR BEAM ENDS

INSTALLATION NOTES:

1. Rivet replacement with HS bolts shall begin with the center-most pair of rivets and continue, by pairs, alternating above and below the starting pair.
2. All bolts shall be fully tensioned prior to removing any additional rivets.
3. Only one end of a floor beam shall be worked on at any one time.
4. Only non-adjacent floor beam ends shall be worked on simultaneously.
5. New bolts shall be the same size, or larger as required, as the rivets being replaced.
6. Rivets which cannot be removed without damaging the adjacent steel shall be cored out, leaving a hole 3/16" larger in diameter than the diameter of the removed rivet. The new HS bolt shall have a diameter which is 1/16" smaller than the cored hole.

DESIGN	BY U. SUNDSTROM 3-97	CHECKED J. MACINTYRE 5-97	
DETAILS	BY D.A. SANDERSON 3-97	CHECKED J. MACINTYRE 5-97	
QUANTITIES	BY P. WATZ 5-97	CHECKED J. SIEMERS/J. MACINTYRE 5-97	

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF STRUCTURES
STRUCTURE DESIGN
TOLL BRIDGE SPECIAL ANALYSIS

BRIDGE NO. 33-0025
POST MILE 1.15

INTERIM SEISMIC RETROFIT PROJECT
EAST BAY CANTILEVER TRUSS
SAN FRANCISCO-OAKLAND BAY BRIDGE
FLOOR BEAM DETAILS NO. 1

DS OSD 2338 (CADD 9/95)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 04
EA 043001

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES (PRELIMINARY STAGE ONLY)

SHEET 4 OF 18

DATE PLOTTED => 9-Dec-1997
TIME PLOTTED => 08:34

USERNAME => trmings

8741.09060342

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	SF, Ala	80	7.8/8.9, 0.0/1.1	109	205

REGISTERED ENGINEER - CIVIL
October 22, 1997

PROFESSIONAL ENGINEER REGISTERED
J. MACINTYRE
No. C 47564
Exp. 12-31-99
CIVIL
STATE OF CALIFORNIA

12-8-97
PLANS APPROVAL DATE

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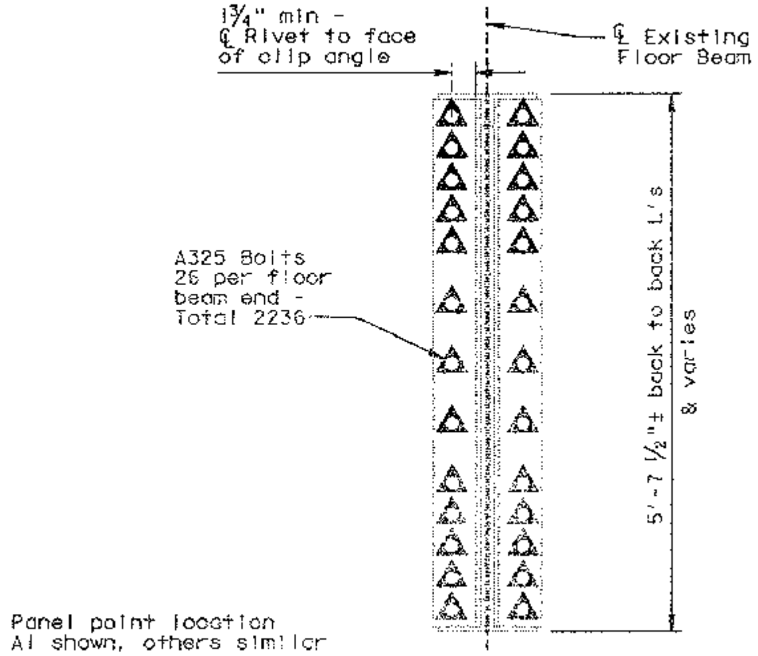
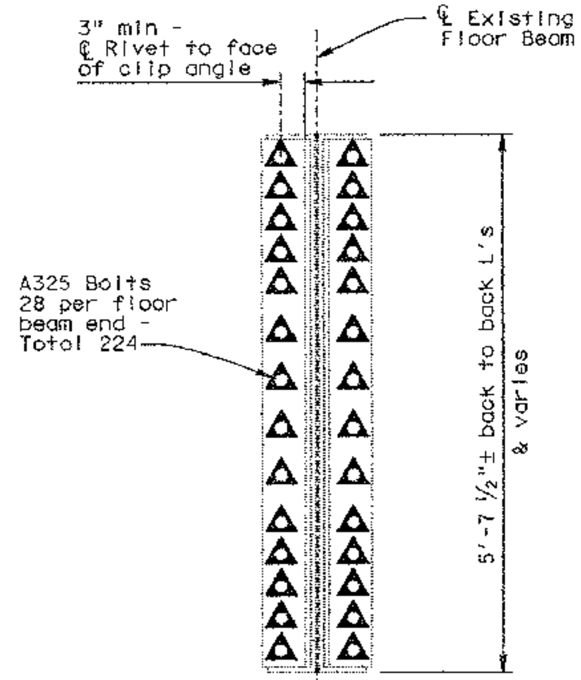


TYPICAL SECTION U-U

1" = 1'-0"

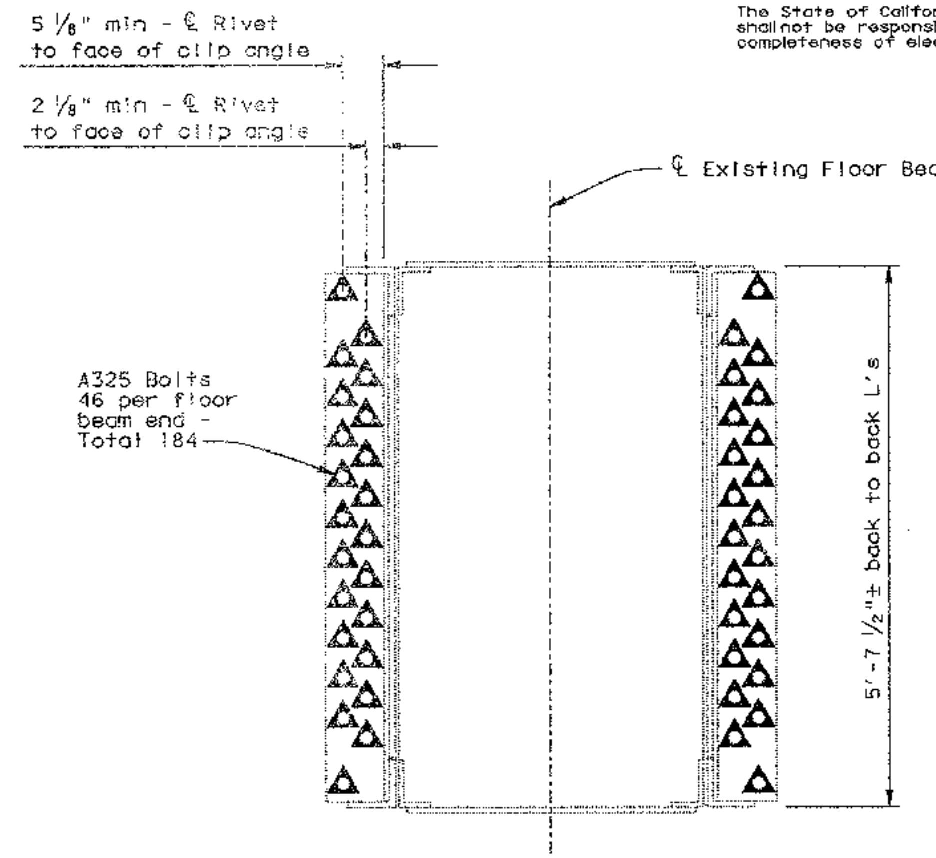


SECTION U-U

1" = 1'-0"

UPPER FLOOR BEAM LOCATIONS

A6, A8



SECTION U-U

1" = 1'-0"

UPPER FLOOR BEAM LOCATIONS

A0

LOCATION	NUMBER OF RIVETS	APPROXIMATE GRIP LENGTH (Inches)
A10	52	1 5/8
A9	52	1 1/8
A8	56	2 7/8
A7	52	1 1/4
A6	56	2 13/16
A5	52	1 1/8
A4	52	1 7/8
A3	52	1 3/4
A2	52	1 7/8
A1	52	1 1/4
A0	92	2 7/8
C1	52	1 3/16
C2	52	1 7/8
C3	52	1 3/16
C4	52	1 3/4
C5	52	1 1/8
C6	52	1 7/8
C7	52	1 3/8
S0	52	1 5/8
S1	52	1 1/8
S2	52	1 7/8
S3	52	1 1/8
S4	52	1 5/8
S5	52	1 1/8
S6	52	1 7/8

Notes:

1. For Floor Beam Location Diagram see "Floor Beam Details No. 1" sheet.
2. Existing steel railing, curb, walkway and pipe railing not shown.
3. "Typical Section U-U" is typical for all upper floor beam locations except as shown.

NOTE:
THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

LEGEND

Indicates existing structures.

Indicates existing rivets to be removed and replaced with new 1⅛" ∅ high strength bolts.

Indicates approx. location of existing rivets

INTERIM SEISMIC RETROFIT PROJECT
EAST BAY CANTILEVER TRUSS
SAN FRANCISCO-OAKLAND BAY BRIDGE
FLOOR BEAM DETAILS NO. 2

	BY	CHECKED
DESIGN	J. SUNDSTROM 3-97	J. MACINTYRE 5-97
DETAILS	D.A. SANDERSON 3-97	J. MACINTYRE 5-97
QUANTITIES	P. WATZ 5-97	J. SIEMERS/J. MACINTYRE 5-97

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF STRUCTURES
STRUCTURE DESIGN
TOLL BRIDGE SPECIAL ANALYSIS

BRIDGE NO. 33-0025
POST MILE 1.15

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 04
EA 043001

DISREGARD PRINTS BEARING EARLIER REVISION DATES →
REVISION DATES (PRELIMINARY STAGE ONLY): 2-27-97, 6-12-97, 6-20-97, 10-2-97, 10-23-97

SHEET 5 OF 18

DS OSD 2139 (CADD 9/95)

USERNAME => trmikasi
cffb2_09C80552

DATE PLOTTED => 9-Dec-1997
TIME PLOTTED => 08:35

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	SF, Ala	80	7.8/8.9, 0.0/1.1	110	205

James S. MacIntyre
REGISTERED ENGINEER - CIVIL
October 22, 1997

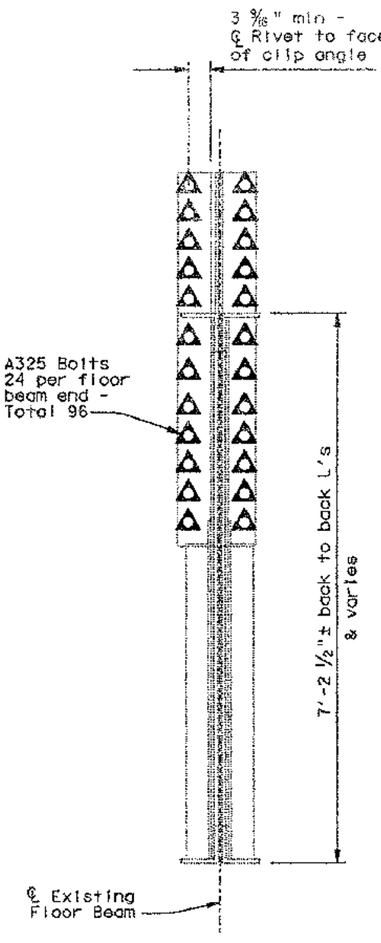
REGISTERED PROFESSIONAL ENGINEER — J. MACINTYRE — No. C 47564 — Exp. 12-31-99 — CIVIL — STATE OF CALIFORNIA

12-8-97
PLANS APPROVAL DATE

The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

Notes:

1. For Floor Beam Location Diagram see "Floor Beam Details No. 1" sheet.
2. Existing steel railing, curb, walkway and pipe railing not shown.

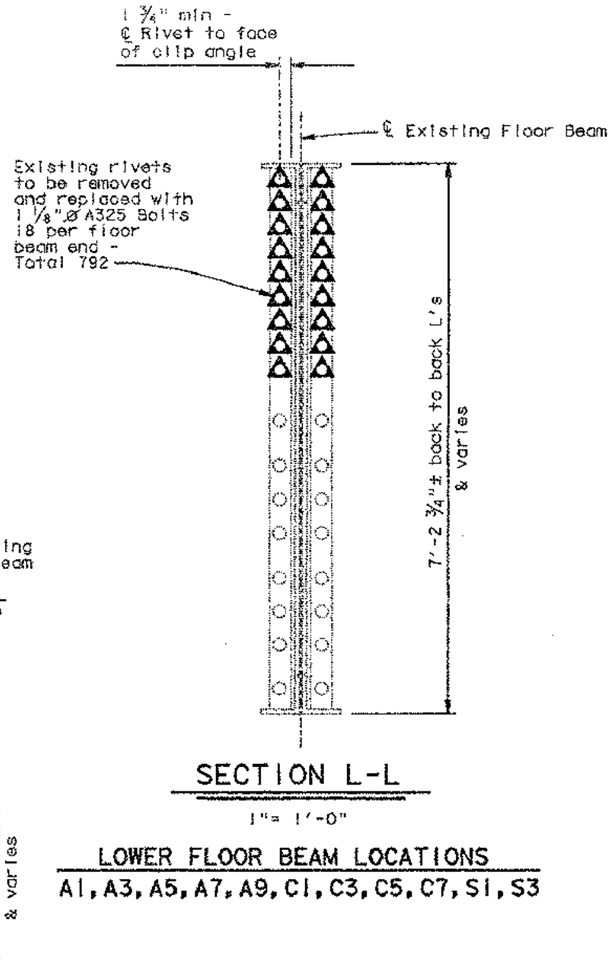


SECTION L-L

1"= 1'-0"

LOWER FLOOR BEAM LOCATION

A10

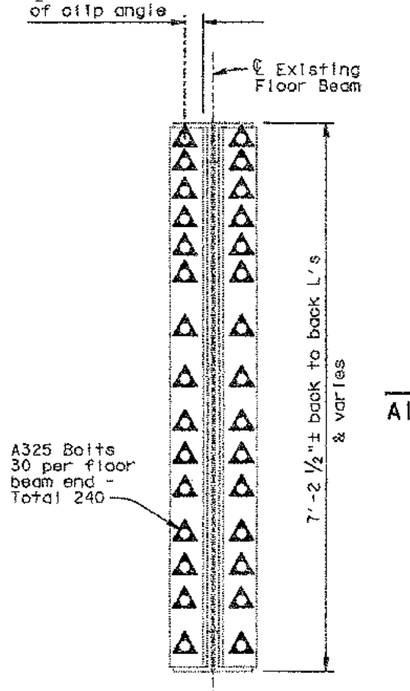


SECTION L-L

1"= 1'-0"

LOWER FLOOR BEAM LOCATIONS

A1, A3, A5, A7, A9, C1, C3, C5, C7, S1, S3



SECTION L-L

1"= 1'-0"

LOWER FLOOR BEAM LOCATIONS

A8, S4

LOCATION	NUMBER OF RIVETS	APPROXIMATE GRIP LENGTH (Inches)
A10	48	5 1/8
A9	36	1 3/4
A8	32	4 1/16
A8	28	4 7/16
A7	36	2 5/16
A5	36	2 3/8
A4	32	4 1/4
A3	36	2 1/2
A2	32	5 1/8
A1	36	3 3/4
A0	96	6 1/8
A0	128	8 1/8
C1	36	2 3/8
C2	32	3 3/8
C3	36	1 13/16
C4	32	4 5/8
C5	36	1 3/4
C6	32	2 13/16
C7	36	3 1/8
S0	48	3 15/16
S1	36	1 3/4
S2	32	2 1/2
S3	28	1 3/4
S4	28	3 5/16
S4	32	4 3/4
S5	48	1 7/8
S6	40	4 1/8

NOTE:
THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

LEGEND

——— *Indicates existing structures.*

△ *Indicates existing rivets to be removed and replaced with new 1¼" ø high strength bolts, unless otherwise noted.*

○ *Indicates approx. location of existing rivets*

INTERIM SEISMIC RETROFIT PROJECT

EAST BAY CANTILEVER TRUSS

SAN FRANCISCO-OAKLAND BAY BRIDGE

FLOOR BEAM DETAILS NO. 3

	BY	DATE	CHECKED	DATE
DESIGN	J. SUNDSTROM	3-97	J. MACINTYRE	5-97
DETAILS	D.A. SANDERSON	3-97	J. MACINTYRE	5-97
QUANTITIES	P. WATZ	5-97	J. SIEMERS/J. MACINTYRE	5-97

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF STRUCTURES
STRUCTURE DESIGN
TOLL BRIDGE SPECIAL ANALYSIS

BRIDGE NO. 33-0025
POST MILE 1.15

CU 04
EA 043001

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES (PRELIMINARY STAGE ONLY)

SHEET 6 OF 18

05 050 2039 (CADD 9/95)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

USERNAME => trmikesl
pffb3_09085238

DATE PLOTTED => 9-DEC-1997
TIME PLOTTED => 08:57

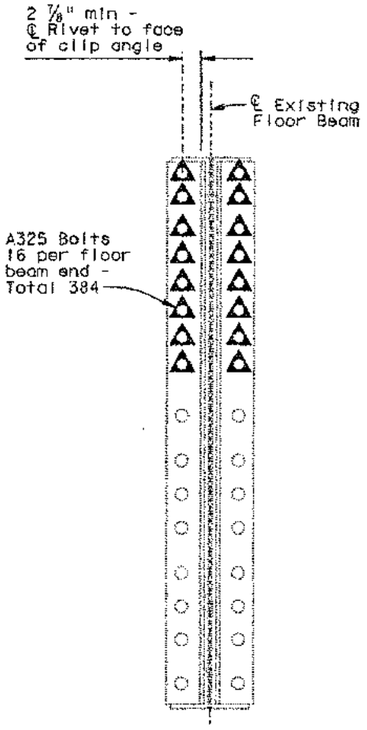
DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	SF, Ala	80	7.8/8.9, 0.0/1.1	111	205

REGISTERED ENGINEER - CIVIL
October 22, 1997

REGISTERED PROFESSIONAL ENGINEER — J. MACINTYRE — No. C 47564 — Exp. 12-31-99 — CIVIL — STATE OF CALIFORNIA

12-8-97
PLANS APPROVAL DATE

The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

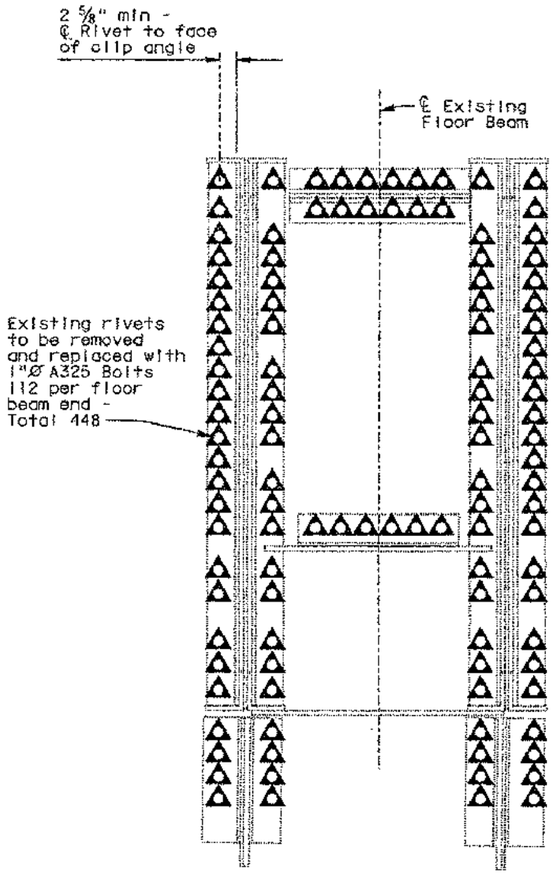


SECTION L-L

1"= 1'-0"

LOWER FLOOR BEAM LOCATIONS

A2, A4, C2, C4, C6, S2

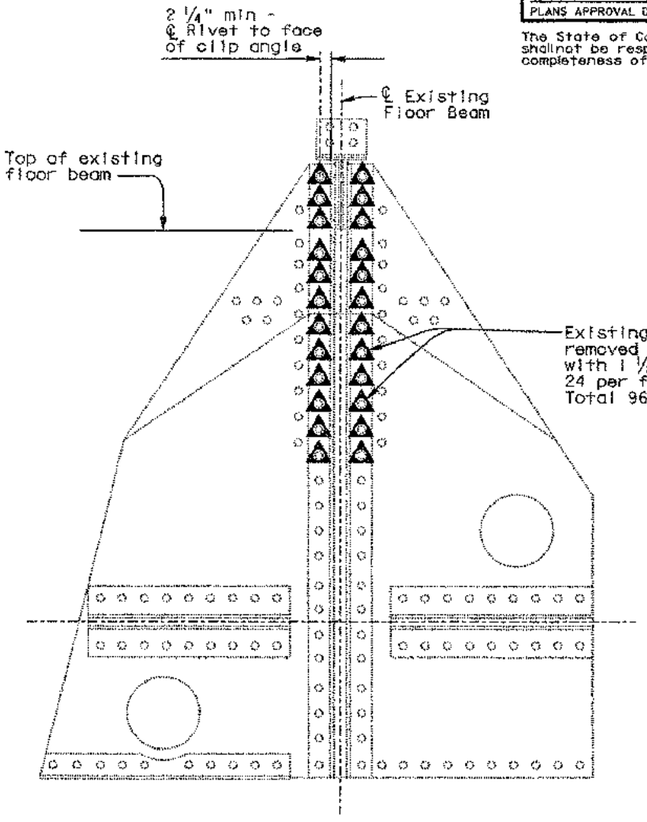


SECTION L-L

1"= 1'-0"

LOWER FLOOR BEAM LOCATIONS

A0



SECTION L-L

1"= 1'-0"

LOWER FLOOR BEAM LOCATIONS

S5

LEGEND

——— *Indicates existing structures.*

△ *Indicates existing rivets to be removed and replaced with new 1 1/4" Ø high strength bolts, unless otherwise noted.*

○ *Indicates approx. location of existing rivets*

Notes:

1. For Floor Beam Location Diagram see "Floor Beam Details No. 1" sheet
2. Existing steel railing, curb, walkway and pipe railing not shown.

NOTE:
THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

DESIGN	BY J. SUNDSTROM 3-97	CHECKED J. MACINTYRE 5-97
DETAILS	BY P.A. SANDERSON 3-97	CHECKED J. MACINTYRE 5-97
QUANTITIES	BY P. WATZ 5-97	CHECKED J. STEWERS/J. MACINTYRE 5-97

STATE OF **CALIFORNIA** DEPARTMENT OF TRANSPORTATION

DIVISION OF STRUCTURES **STRUCTURE DESIGN** TOLL BRIDGE SPECIAL ANALYSIS

BRIDGE NO. 33-0025
POST MILE 1.15

INTERIM SEISMIC RETROFIT PROJECT
EAST BAY CANTILEVER TRUSS
SAN FRANCISCO-OAKLAND BAY BRIDGE
FLOOR BEAM DETAILS NO. 4

DS 050 2639 (CADD 9/95)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 04
EA 043001

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES (PRELIMINARY STAGE ONLY): 7-22-97 | 8-8-97 | 10-2-97

SHEET 7 OF 18

USERNAME => trphlis

DATE PLOTTED => 9-DEC-1997
TIME PLOTTED => 08:46

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	SF, Ala	80	7.8/8.9, 0.0/1.1	112	205

REGISTERED ENGINEER - CIVIL
October 22, 1997

REGISTERED PROFESSIONAL ENGINEER — J. MACINTYRE — No. C 47564 — Exp. 12-31-98 — CIVIL — STATE OF CALIFORNIA

12-8-97
PLANS APPROVAL DATE

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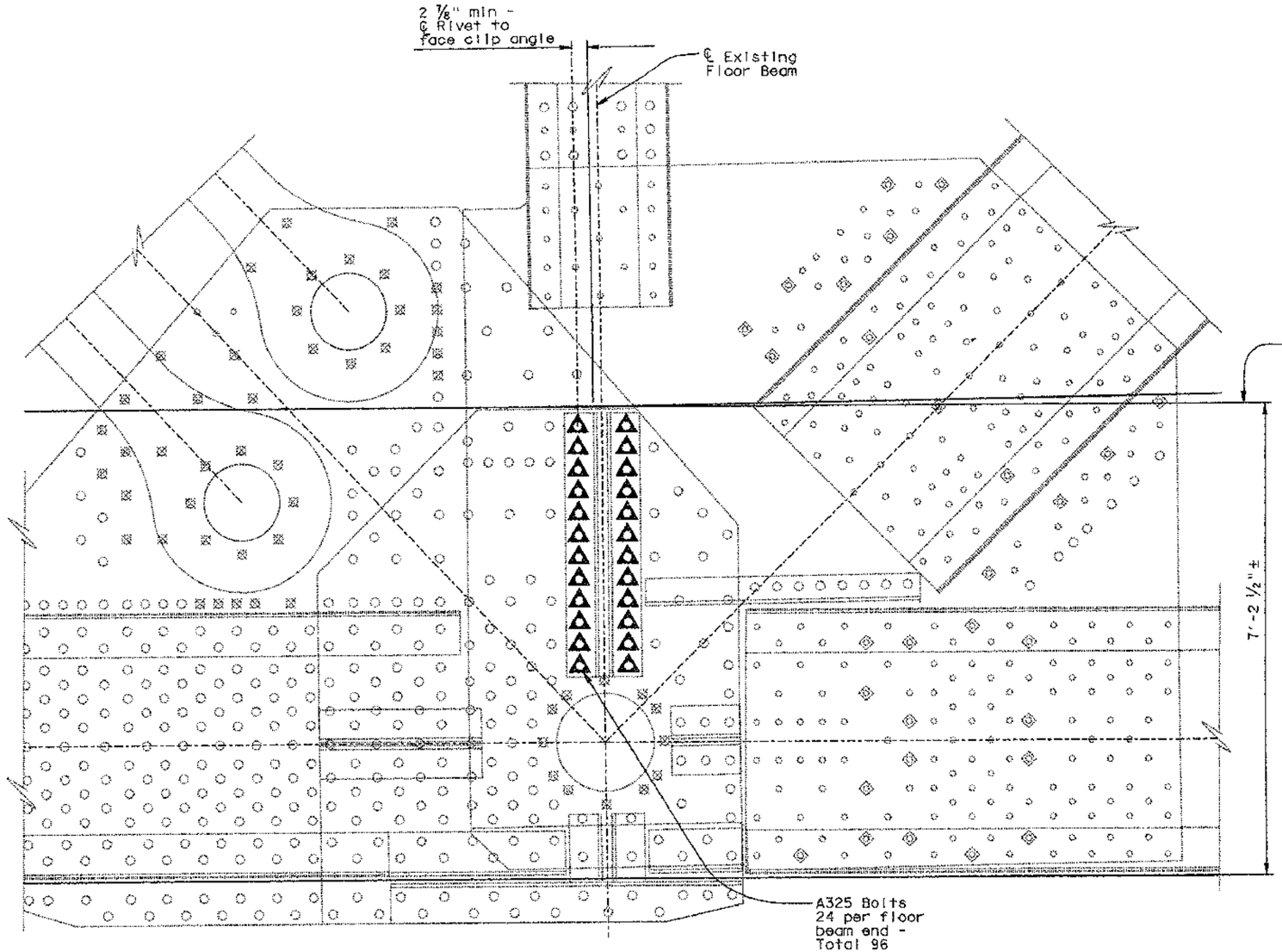
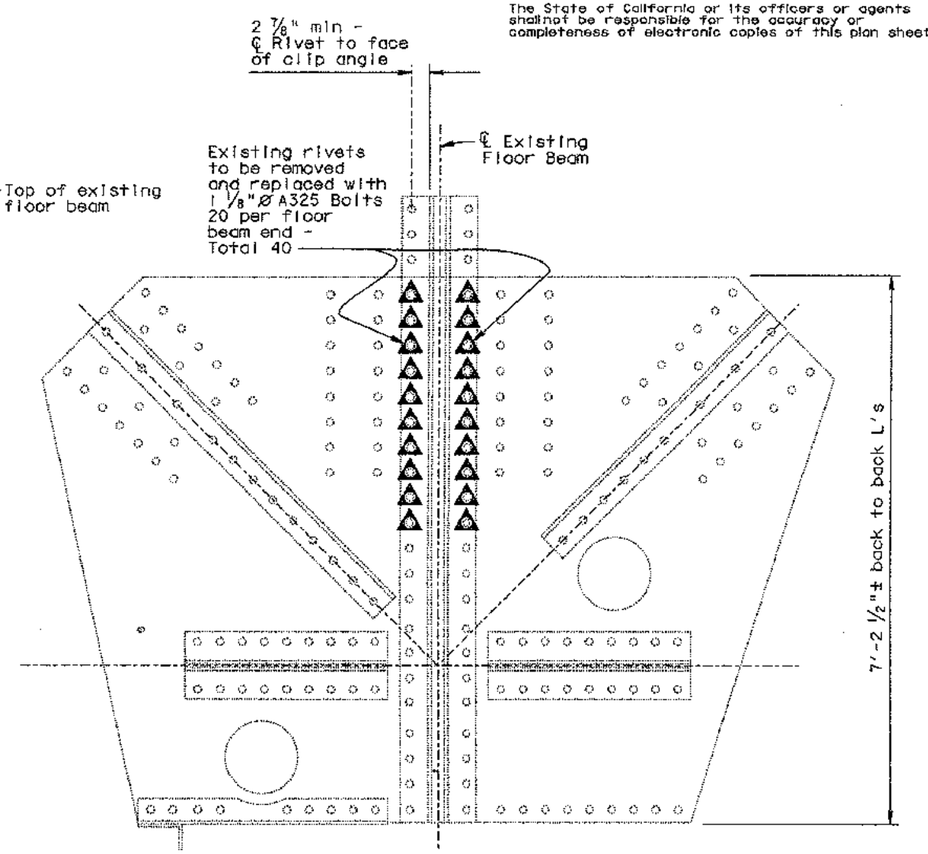


SECTION L-L

1"= 1'-0"

LOWER FLOOR BEAM LOCATIONS
S0



SECTION L-L

1"= 1'-0"

LOWER FLOOR BEAM LOCATION
S6

NOTE:
THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

Notes:

1. For Floor Beam Location Diagram see "Floor Beam Details No. 1" sheet.
2. Existing steel railing, curb, walkway and pipe railing not shown.

LEGEND

- ——— *indicates existing structures.*
- △ *indicates existing rivets to be removed and replaced with new 1 1/8" ø high strength bolts, unless otherwise noted.*
- ○ *indicates approx. location of existing rivets*

DESIGN	BY J. GUNDSTROM 3-97	CHECKED J. MACINTYRE 5-97	
DETAILS	BY D.A. SANDERSON 3-97	CHECKED J. MACINTYRE 5-97	
QUANTITIES	BY P. WATZ 5-97	CHECKED J. SIEMERS/J. MACINTYRE 5-97	

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF STRUCTURES
STRUCTURE DESIGN
TOLL BRIDGE SPECIAL ANALYSIS

BRIDGE NO. 33-0025
POST MILE 1.15

CU 04
EA 043001

INTERIM SEISMIC RETROFIT PROJECT
EAST BAY CANTILEVER TRUSS
SAN FRANCISCO-OAKLAND BAY BRIDGE
FLOOR BEAM DETAILS NO. 5

DS 050 2139 (CADD 9/95)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

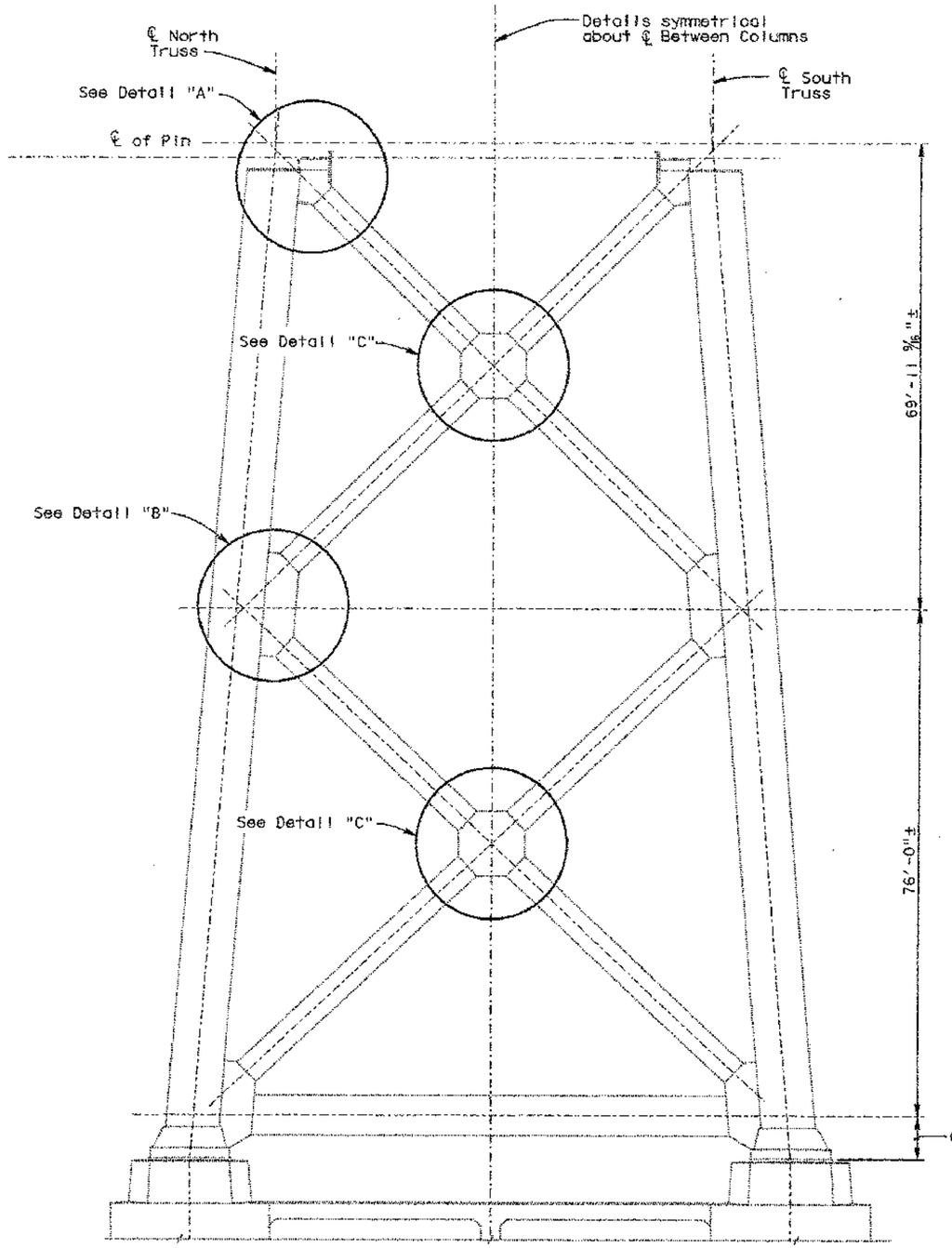
DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES (PRELIMINARY STAGE ONLY): 2-20-97 | 5-30-97 | 10-2-97

SHEET 8 OF 18

DATE PLOTTED => 9-Dec-1997
TIME PLOTTED => 08:47

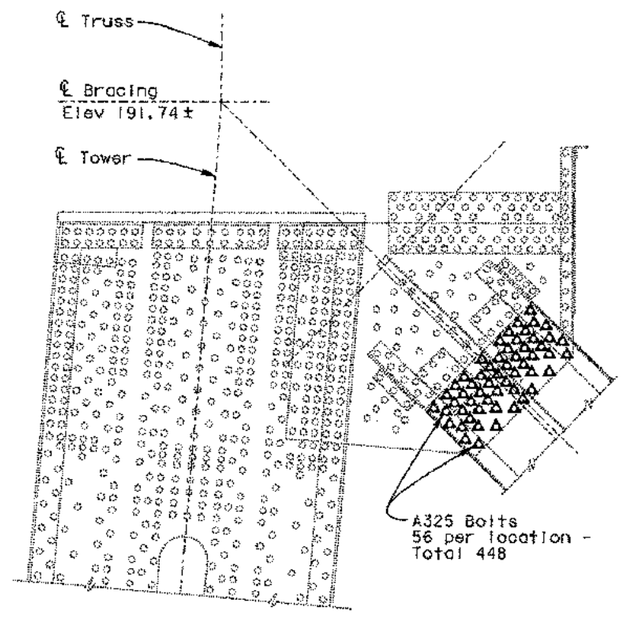
USERNAME => trphlis



PART ELEVATION

3/32 " = 1'-0"

NOTE:
THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.



DETAIL "A"

1/2" = 1'-0"

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	SF, Ala	80	7.8/8.9, 0.0/1.1	113	205

James S. MacIntyre
REGISTERED ENGINEER - CIVIL
October 22, 1997

REGISTERED PROFESSIONAL ENGINEER — J. MACINTYRE — No. C 47564 — Exp. 12-31-99 — CIVIL — STATE OF CALIFORNIA

12-8-97
PLANS APPROVAL DATE

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DETAIL "A"	
Number Per Location	Approximate Grip Length (Inches)
12	2 1/16
6	1 3/4
38	1 3/8

LEGEND

- ——— Indicates existing structures.
- △ Indicates existing rivets to be removed and replaced with new 1" Ø high strength bolts.
- ○ Indicates approx. location of existing rivets

Notes:

1. Pier E2 shown, Pier E3 similar.
2. For Detail "B" & Detail "C" see "Piers E2, E3 Details No. 2" sheet.

TOWERS E2, E3 & E4

INSTALLATION NOTES:

1. Rivet replacement with HS bolts shall begin with the center-most rivets in any given member-end and continue outward in a concentric pattern. No more than 25% of the total rivets to be replaced in a single face of any single member end may be worked on at one time.
2. Only one member-end per gusset shall be worked on at one time and must be completed before work commences on any additional member-ends within the same gusset.
3. Only one face of a gusset shall be worked on at any one time.
4. All HS bolts shall be fully tensioned prior to removing any additional rivets.
5. New HS bolts shall be the same size, or larger as required, as the rivets being replaced.
6. Rivets which cannot be removed without damaging the adjacent steel shall be cored out, leaving a hole 3/16" larger in diameter than the diameter of the removed rivet. The new HS bolt shall have a diameter which is 1/16" smaller than the cored hole.

DESIGN	BY J. SUNDSTROM 3-97	CHECKED J. MACINTYRE 5-97	
DETAILS	BY D.A. SANDBERGN 3-97	CHECKED J. MACINTYRE 5-97	
QUANTITIES	BY J. MACINTYRE 5-97	CHECKED J. SUNDSTROM 5-97	

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF STRUCTURES
STRUCTURE DESIGN
TOLL BRIDGE SPECIAL ANALYSIS

BRIDGE NO. 33-0025
POST MILE 1.15

CU 04
EA 043001

INTERIM SEISMIC RETROFIT PROJECT
EAST BAY CANTILEVER TRUSS
SAN FRANCISCO-OAKLAND BAY BRIDGE
PIERS E2,E3 DETAILS NO. 1

DISREGARD PRINTS BEARING EARLIER REVISION DATES →
REVISION DATES (PRELIMINARY STAGE ONLY): 2-27-97 | 3-5-97 | 5-5-97 | 5-30-97 | 6-2-97 | 6-27-97 | 10-23-97

SHEET 9 OF 18

DATE PLOTTED => 9-Dec-1997
TIME PLOTTED => 08:49

DS OSD 2159 (CAD9 9/95)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

USERNAME => trphills
ceplre2e31.09084532

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	SF, Ala	80	7.8/8.9, 0.0/1.1	114	205

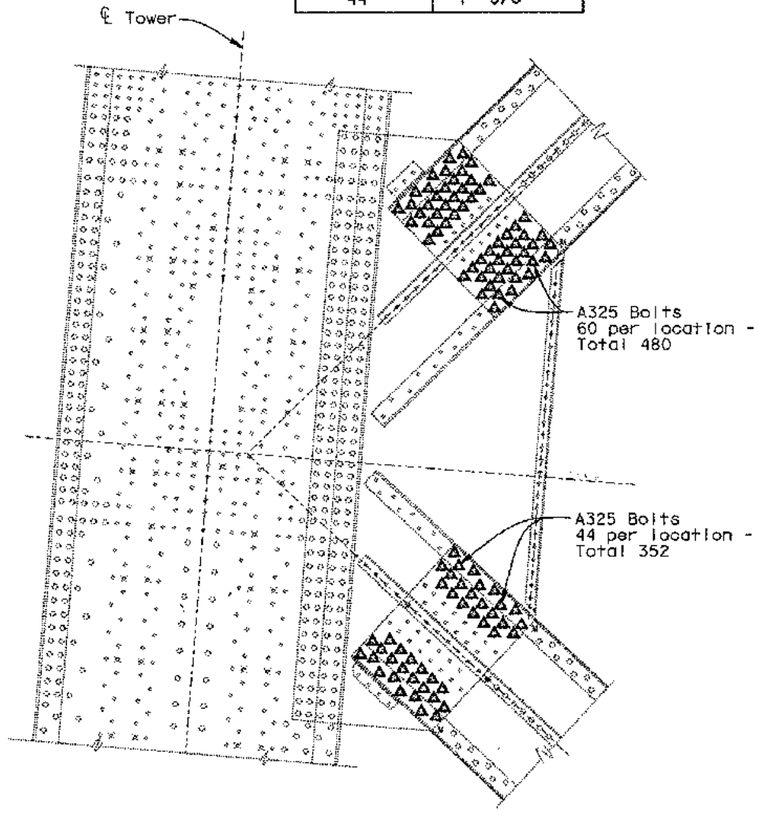
REGISTERED ENGINEER - CIVIL
October 22, 1997

REGISTERED PROFESSIONAL ENGINEER — J. MACINTYRE — No. C 47564 — Exp. 12-31-99 — CIVIL — STATE OF CALIFORNIA

12-8-97
PLANS APPROVAL DATE

The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

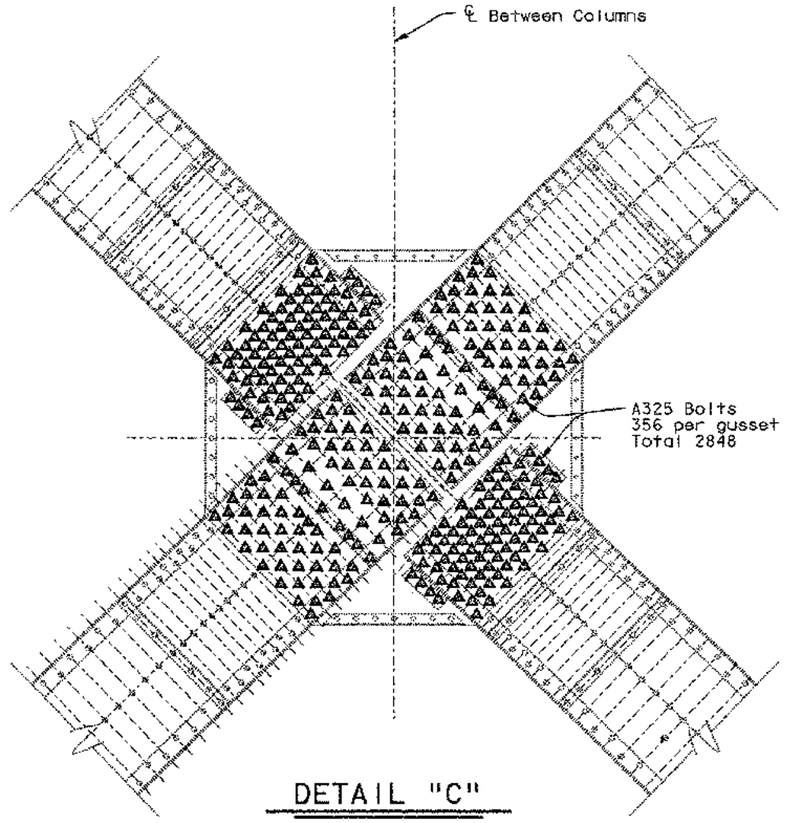
DETAIL "B" - UPPER	
Number Per Location	Approximate Grip Length (Inches)
16	1 13/16
44	1 3/8



DETAIL "B"

½" = 1'-0"

DETAIL "B" - LOWER	
Number Per Location	Approximate Grip Length (Inches)
16	2 1/16
28	1 3/8



DETAIL "C"

½" = 1'-0"

DETAIL "C"	
Number Per Location	Approximate Grip Length (Inches)
160	2 1/16
36	2 7/16
32	1 13/16
128	1 3/8

Note:

1. For location of Detail "B" & Detail "C" see "Piers E2,E3 Details No. 1" sheet.

NOTE:
THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

LEGEND

——— *Indicates existing structures.*

△ *Indicates existing rivets to be removed and replaced with new 1" ø high strength bolts.*

○ *Indicates approx. location of existing rivets*

DATE PLOTTED -> 9-Dec-1997
TIME PLOTTED -> 08:50

INTERIM SEISMIC RETROFIT PROJECT
EAST BAY CANTILEVER TRUSS
SAN FRANCISCO-OAKLAND BAY BRIDGE
PIERS E2,E3 DETAILS NO. 2

DESIGN	BY J. SUNDSTROM 3-97	CHECKED J. MACINTYRE 5-97	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF STRUCTURES STRUCTURE DESIGN TOLL BRIDGE SPECIAL ANALYSIS	BRIDGE NO. 33-0025
DETAILS	BY D.A. SANDERSON 3-97	CHECKED J. MACINTYRE 5-97			POST MILE 1.15
QUANTITIES	BY J. MACINTYRE 5-97	CHECKED J. SUNDSTROM 5-97			

05 OSD 259 (CADD 9/95)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 04
EA 043001

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES (PRELIMINARY STAGE ONLY): 2-28-97 | 3-6-97 | 3-14-97 | 5-8-97 | 5-22-97 | 6-5-97 | 6-26-97 | 10-29-97

SHEET 10 OF 18

USERNAME => frphillis
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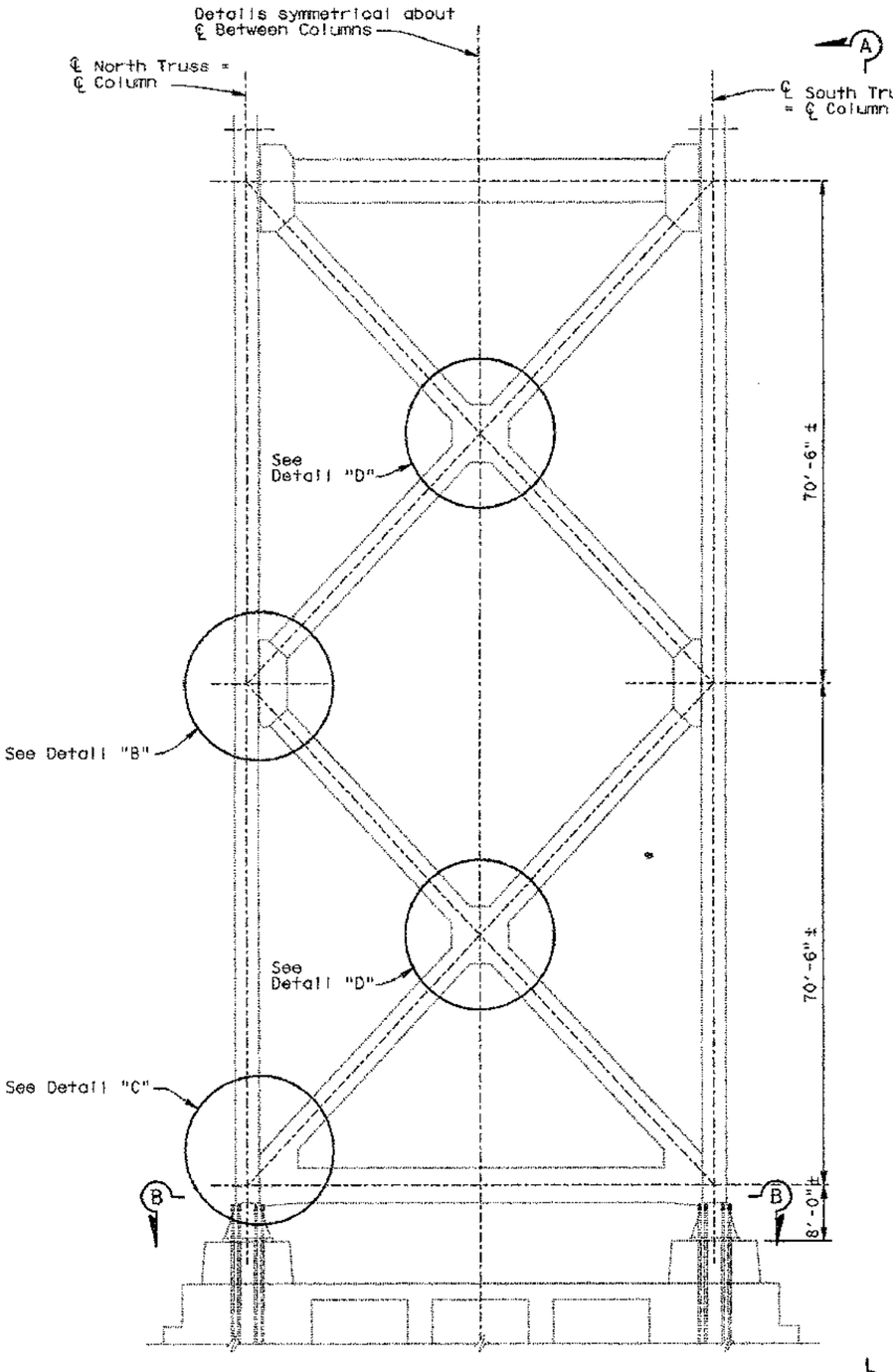
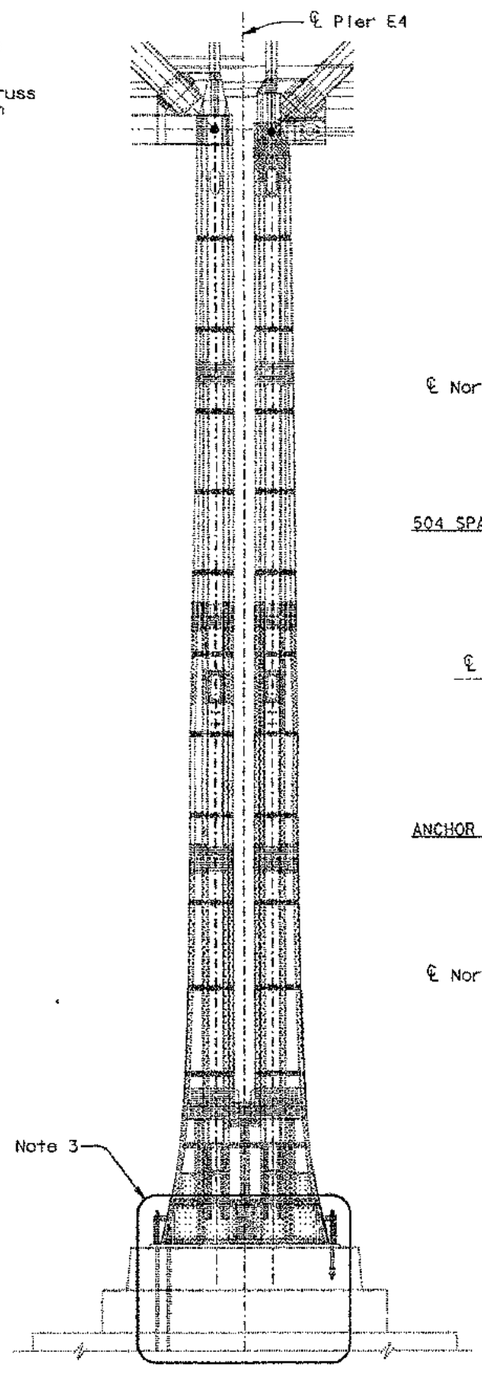


PART ELEVATION

3/32 " = 1'-0"



VIEW A-A

3/32 " = 1'-0"

LEGEND

- ——— *indicates existing structures.*
- ▲ *indicates existing rivets to be removed and replaced with new 1" Ø high strength bolts.*
- ○ *indicates approx. location of existing rivets*

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	SF, Ala	80	7.8/8.9, 0.0/1.1	115	205

James S. MacIntyre
REGISTERED ENGINEER - CIVIL
October 22, 1997

REGISTERED PROFESSIONAL ENGINEER
J. MACINTYRE
No. C 47564
Exp. 12-31-99
CIVIL
STATE OF CALIFORNIA

12-8-97
PLANS APPROVAL DATE

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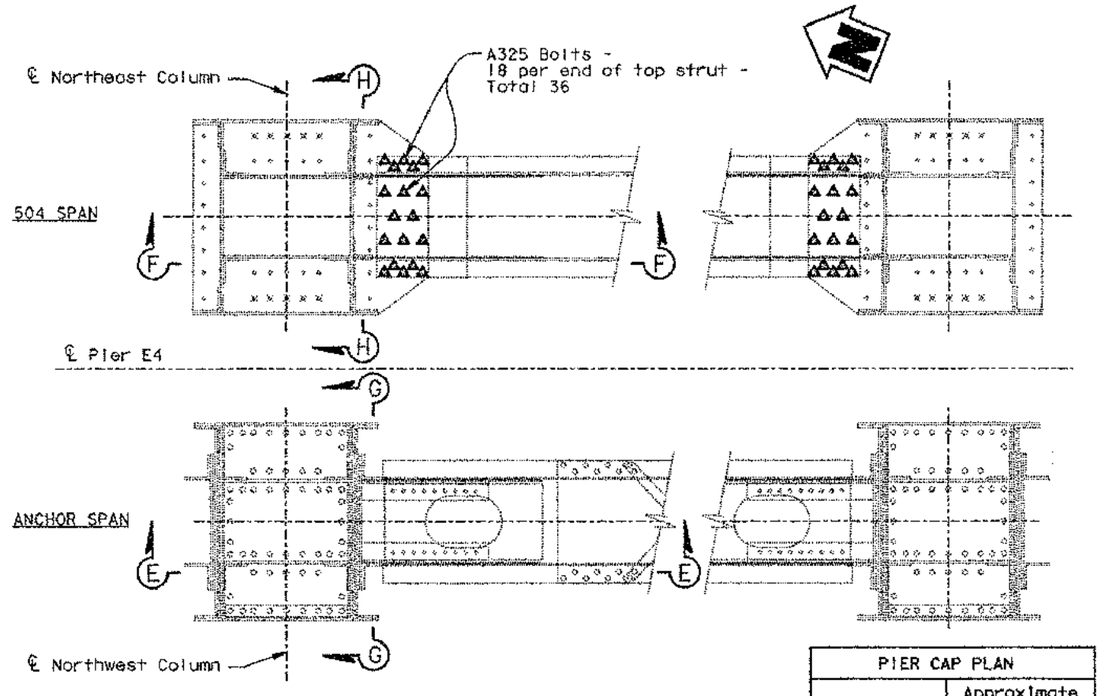


PIER CAP PLAN

1/2" = 1'-0"

PIER CAP PLAN	
Number Per Location	Approximate Grip Length (Inches)
20	3 13/16
16	3 5/16

Notes:

1. For Detail "B", Detail "C" and Detail "D" see "Pier E4 Details No. 2" sheet.
2. For Sections E-E, F-F, G-G and H-H see "Pier E4 Details No. 3" sheet.
3. For base of tower retrofit details see "Pier E4 Details No. 4 and No. 5" sheets.
4. For Pier E4 shop drawings reference see "Pier E4 Details No. 2" sheet.

NOTE:
THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

INTERIM SEISMIC RETROFIT PROJECT
EAST BAY CANTILEVER TRUSS
SAN FRANCISCO-OAKLAND BAY BRIDGE
PIER E4 DETAILS NO. 1

DESIGN	BY J. LYNCH 3-97	CHECKED J. SUNDSTROM 5-97
DETAILS	BY D.A. SANDERSON 3-97	CHECKED J. SUNDSTROM 5-97
QUANTITIES	BY J. LYNCH 5-97	CHECKED J. SIEMERS 5-97

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF STRUCTURES
STRUCTURE DESIGN
TOLL BRIDGE SPECIAL ANALYSIS

BRIDGE NO. 33-0025
POST MILE 1.15

CU 04
EA 043001

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES (PRELIMINARY STAGE ONLY): 5-9-97 | 6-24-97 | 10-2-97 | 10-29-97

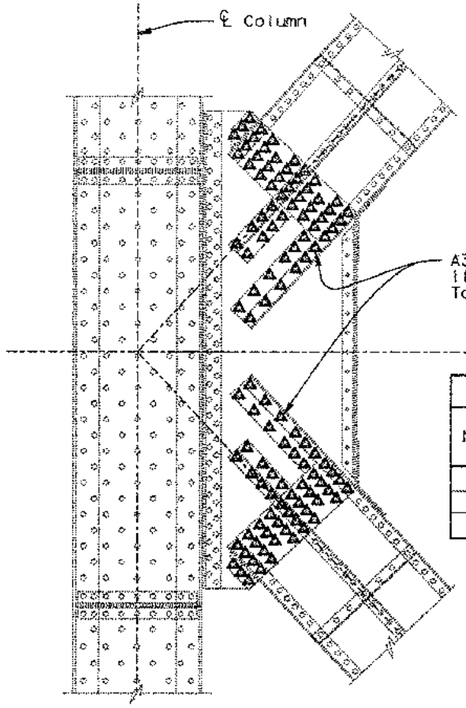
SHEET 11 OF 18

DS GSD 2039 (CADD 9/95)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

USERNAME => trphlis

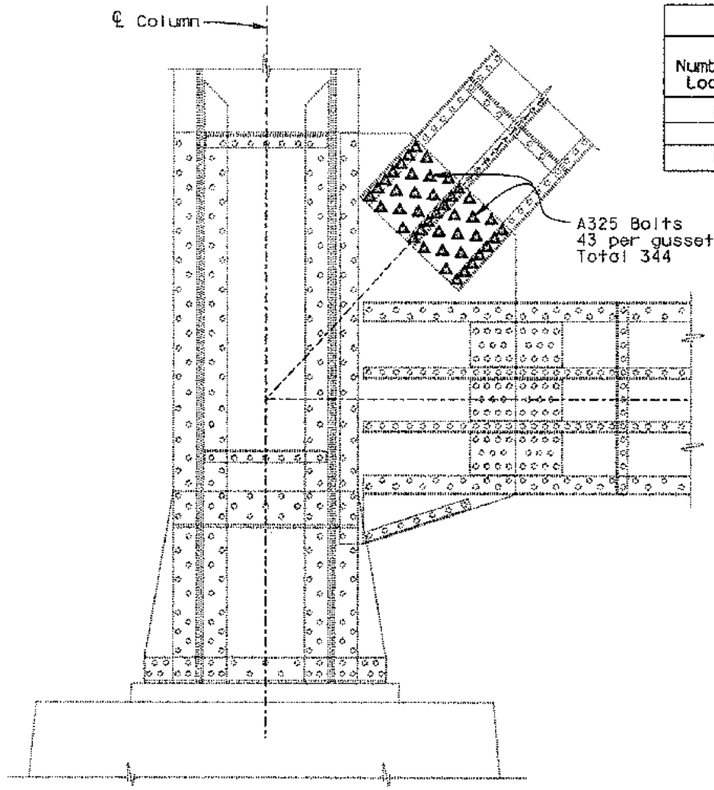
DATE PLOTTED => 9-DEC-1997
TIME PLOTTED => 08:51



DETAIL "B"	
Number Per Location	Approximate Grip Length (inches)
272	1 1/2
128	1 7/16
512	1

DETAIL "B"

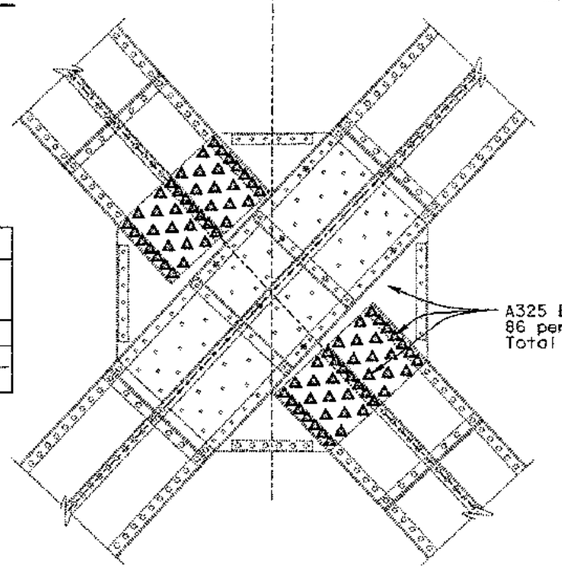
½" = 1'-0"



DETAIL "C"	
Number Per Location	Approximate Grip Length (inches)
112	1 1/2
56	1 7/16
176	1

DETAIL "C"

½" = 1'-0"



DETAIL "D"	
Number Per Location	Approximate Grip Length (inches)
224	1 1/2
112	1 7/16
352	1

DETAIL "D"

½" = 1'-0"

LEGEND

——— *Indicates existing structures.*

△ *Indicates existing rivets to be removed and replaced with new ⅞" ø high strength bolts.*

○ *Indicates approx. location of existing rivets*

NOTE:
THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

Note:

1. For location of Detail "B", Detail "C" and Detail "D" see "Pier E4 Details No. 1" sheet.

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	SF, Ala	80	7.8/8.9, 0.0/1.1	116	205

REGISTERED ENGINEER - CIVIL
October 22, 1997

REGISTERED PROFESSIONAL ENGINEER
J. MACINTYRE
No. C 47564
Exp. 12-31-99
CIVIL
STATE OF CALIFORNIA

12-8-97
PLANS APPROVAL DATE

The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

DESIGN	BY J. LYNCH 3-97	CHECKED J. SUNDSTROM 5-97	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF STRUCTURES STRUCTURE DESIGN TOLL BRIDGE SPECIAL ANALYSIS	BRIDGE NO. 33-0025 POST MILE 1.15
DETAILS	BY D.A. SANDERSON 3-97	CHECKED J. SUNDSTROM 5-97			
QUANTITIES	BY J. LYNCH 5-97	CHECKED J. SIEMERS 5-97			

INTERIM SEISMIC RETROFIT PROJECT
EAST BAY CANTILEVER TRUSS
SAN FRANCISCO-OAKLAND BAY BRIDGE
PIER E4 DETAILS NO. 2

DS 050 2339 (CADD 9/95)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 04
EA 043001

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES (PRELIMINARY STAGE ONLY)

SHEET 12 OF 18

DATE PLOTTED => 9-Dec-1997
TIME PLOTTED => 08:53

USERNAME => tronlis

cepire42_09084641

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	SF, Alo	80	7.8/8.9, 0.0/1.1	117	205

James S. McIntyre
REGISTERED ENGINEER - CIVIL
October 22, 1997

REGISTERED PROFESSIONAL ENGINEER — J. MACINTYRE — No. C 37564 — Exp. 12-31-99 — CIVIL — STATE OF CALIFORNIA

12-8-97
PLANS APPROVAL DATE

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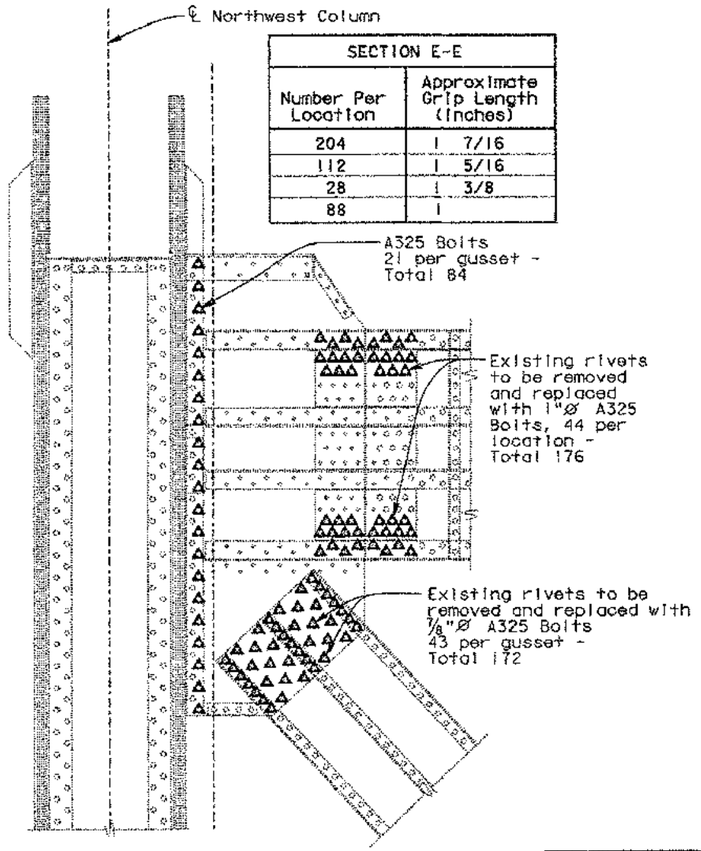
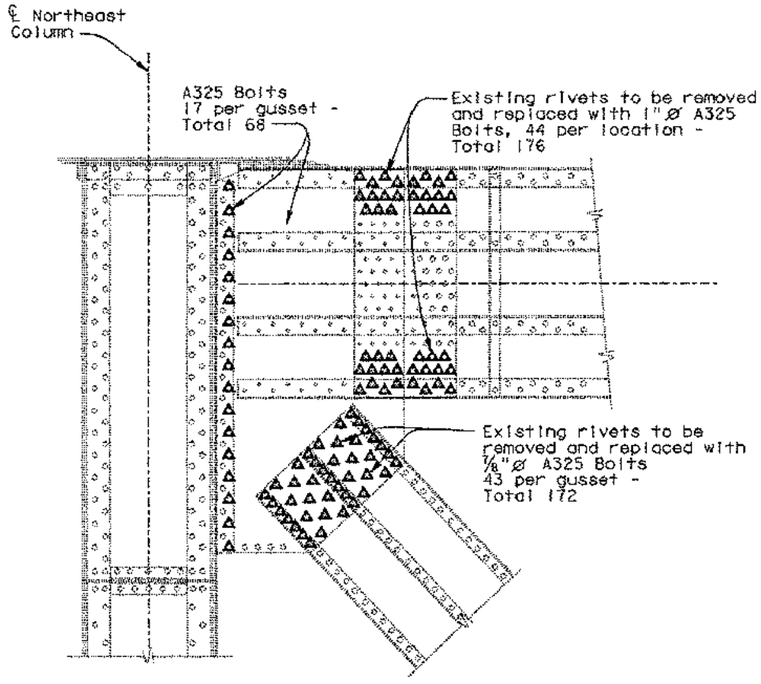


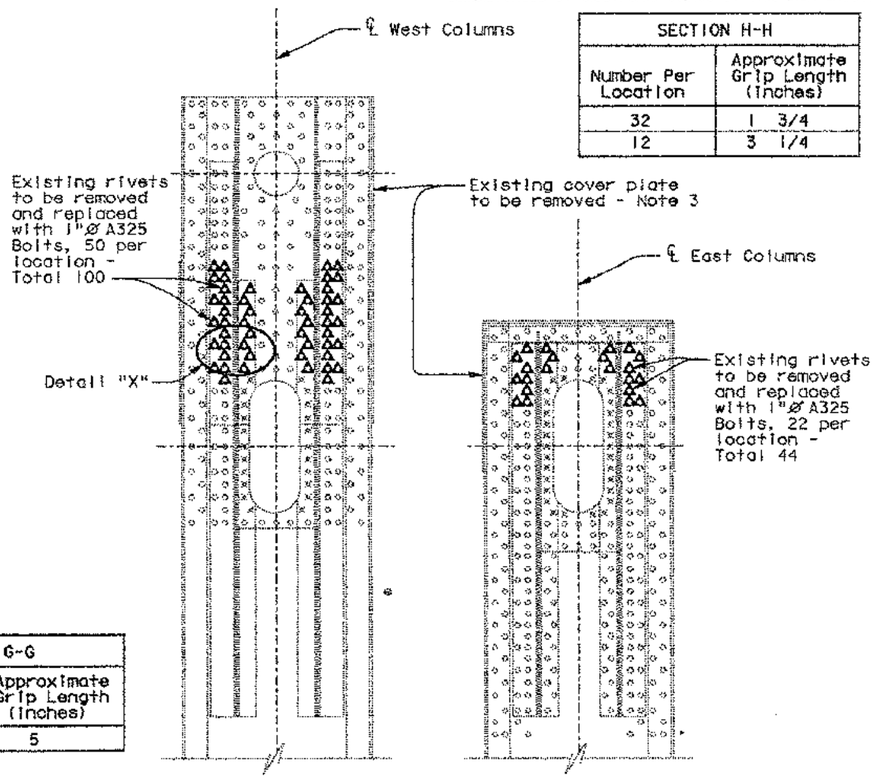
SECTION E-E	
Number Per Location	Approximate Grip Length (Inches)
204	1 7/16
112	1 5/16
28	1 3/8
88	1

SECTION E-E
½" = 1'-0"



SECTION F-F	
Number Per Location	Approximate Grip Length (Inches)
188	1 7/16
112	1 5/16
28	1 3/8
88	1

SECTION F-F
½" = 1'-0"

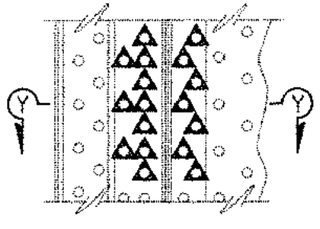


SECTION H-H	
Number Per Location	Approximate Grip Length (Inches)
32	1 3/4
12	3 1/4

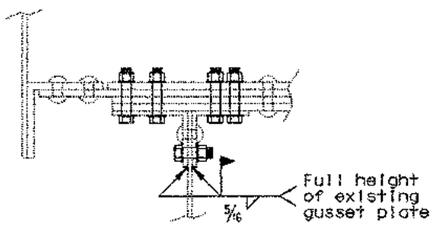
SECTION G-G	
Number Per Location	Approximate Grip Length (Inches)
100	5

SECTION G-G
½" = 1'-0"

SECTION H-H
½" = 1'-0"



DETAIL "X"
1" = 1'-0"



SECTION Y-Y
1 ½" = 1'-0"

Notes:

1. For location of Sections E-E, F-F, G-G and H-H see "Pier E4 Details No. 1" sheet.
2. Superstructure not shown
3. For limits of cover plate removal see "Pier E4 Tower Bumper Details No. 2 and No. 3" sheets.

LEGEND

——— *Indicates existing structures.*

△ *Indicates existing rivets to be removed and replaced with new 1⅛" Ø high strength bolts, unless otherwise noted.*

○ *Indicates approx. location of existing rivets*

NOTE:
THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

INTERIM SEISMIC RETROFIT PROJECT
EAST BAY CANTILEVER TRUSS
SAN FRANCISCO-OAKLAND BAY BRIDGE
PIER E4 DETAILS NO. 3

DESIGN	BY J. LYNCH 3-97	CHECKED J. SUNDSTROM 5-97	
DETAILS	BY D.A. SANDERSON 3-97	CHECKED J. SUNDSTROM 5-97	
QUANTITIES	BY J. LYNCH 5-97	CHECKED J. SIEMERS 5-97	

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF STRUCTURES
STRUCTURE DESIGN
TOLL BRIDGE SPECIAL ANALYSIS

BRIDGE NO. 33-0025
POST MILE 1.15

CU 04
EA 043001

DS OSD 2139 (CADD 9/95)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES (PRELIMINARY STAGE ONLY): 2-27-97 | 5-30-97 | 6-12-97 | 6-25-97 | 10-29-97

SHEET 13 OF 18

DATE PLOTTED => 9-DEC-1997
TIME PLOTTED => 08:54

USERNAME => trphils

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	SF, Alc	80	7.8/8.9, 0.0/1.1	118	205

REGISTERED ENGINEER - CIVIL
October 22, 1997

REGISTERED PROFESSIONAL ENGINEER — J. MACINTYRE — No. C 47564 — Exp. 12-31-98 — CIVIL — STATE OF CALIFORNIA

12-8-97
PLANS APPROVAL DATE

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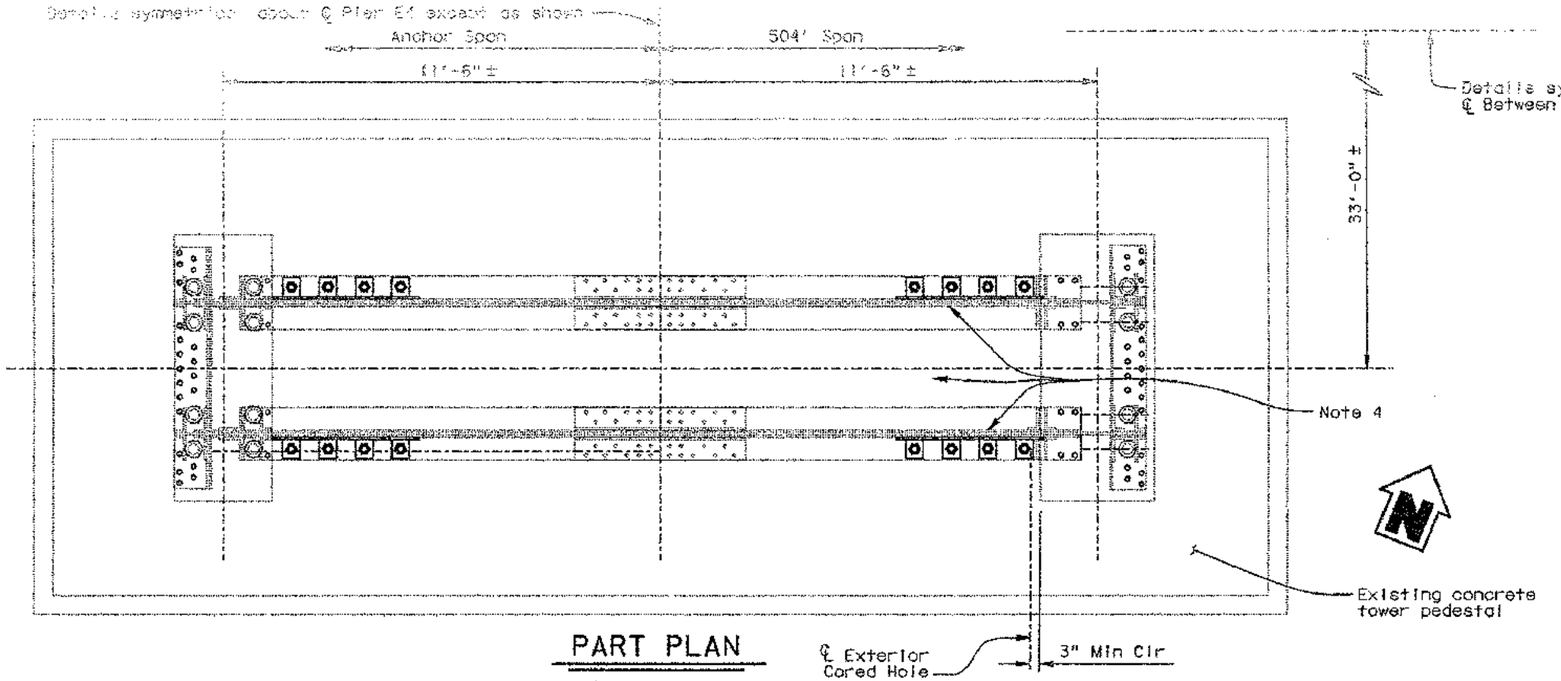
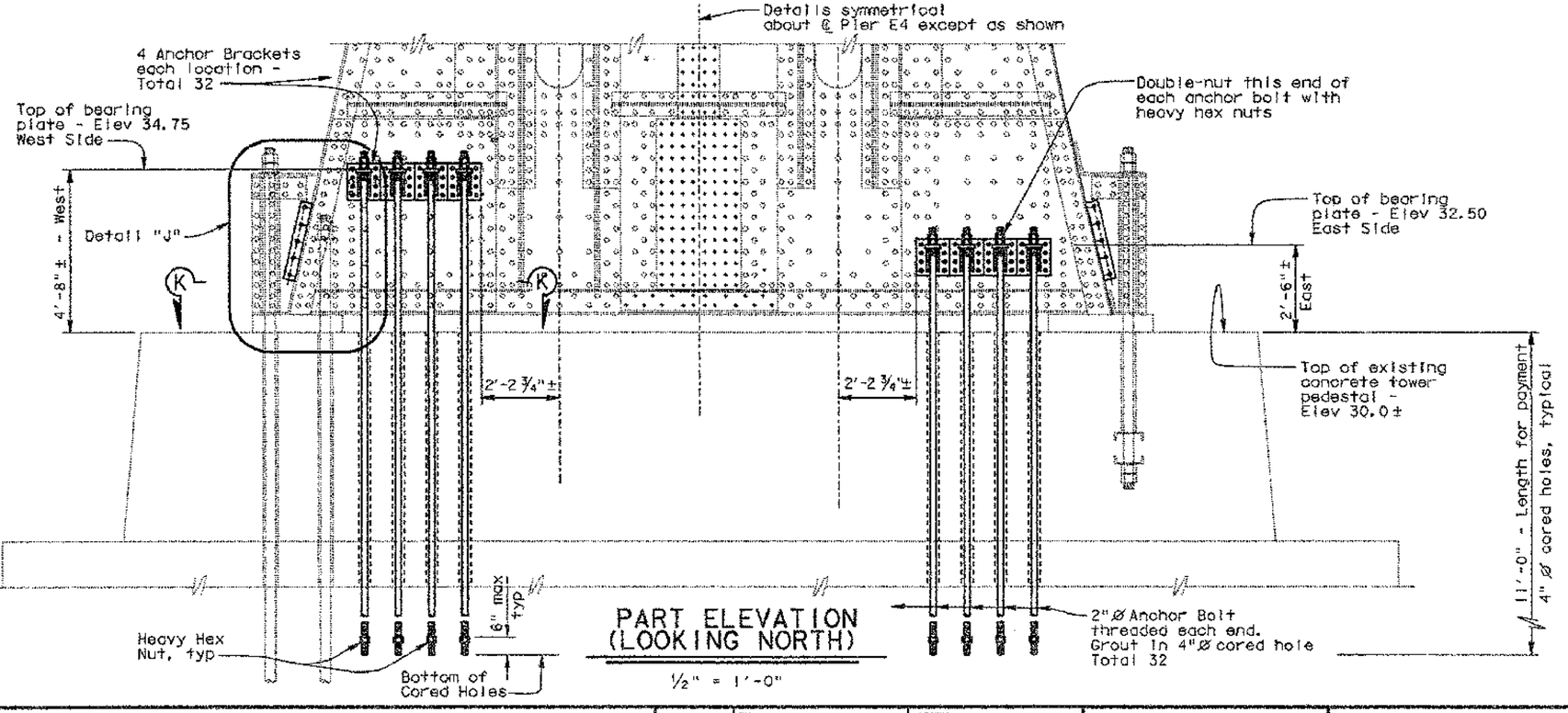
Details symmetrical about ℄ Pier E4 except as shown



PART PLAN

½" = 1'-0"



PART ELEVATION (LOOKING NORTH)

½" = 1'-0"

LEGEND

- ——— *Indicates existing structures.*
- ● *Indicates new high strength bolts.*
- ○ *Indicates approx. location of existing rivets*

Notes:

1. For Detail "J" and Section K-K see "Pier E4 Details No. 5" sheet
2. For details not shown see "Pier E4 Details No. 5" sheet
3. Existing rivet heads behind the new anchor brackets shall be ground flush with the surrounding plate.
4. Existing rivet heads inside the column shall be ground flush with the surrounding plate when interference occurs with new anchor bracket bolts.
5. Surfaces of cored holes shall be roughened to ¼" amplitude.

NOTE:
THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

DESIGN	BY J. LYNCH 3-97	CHECKED J. GUNDSTROM 5-97	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION
DETAILS	BY D.A. SANDERSON 3-97	CHECKED J. GUNDSTROM 5-97	DIVISION OF STRUCTURES STRUCTURE DESIGN TOLL BRIDGE SPECIAL ANALYSIS
QUANTITIES	BY J. LYNCH 5-97	CHECKED J. SIEMERS 5-97	

DS OSD 2139 (CADD 9/95)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 04
EA 043001

BRIDGE NO. 33-0025
POST MILE 1.15

INTERIM SEISMIC RETROFIT PROJECT
EAST BAY CANTILEVER TRUSS
SAN FRANCISCO-OAKLAND BAY BRIDGE
PIER E4 DETAILS NO. 4

DISREGARD PRINTS BEARING EARLIER REVISION DATES → REVISION DATES (PRELIMINARY STAGE ONLY) 2-27-97 | 3-4-97 | 3-6-97 | 3-10-97 | 5-22-97 | 5-30-97 | 6-26-97 | 10-2-97

SHEET 14 OF 18

DATE PLOTTED => 9-Dec-1997
TIME PLOTTED => 08:55

USERNAME => tripplis

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	SF, Ala	80	7.8/8.9, 0.0/1.1	119	205

REGISTERED ENGINEER - CIVIL
October 22, 1997

PROFESSIONAL ENGINEER — J. MACINTYRE — No. C 47564 — Exp. 12-31-99 — CIVIL — STATE OF CALIFORNIA

12-8-97
PLANS APPROVAL DATE

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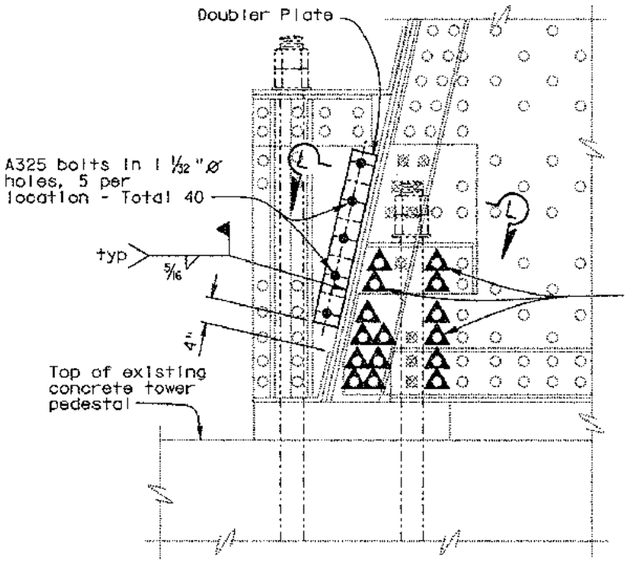
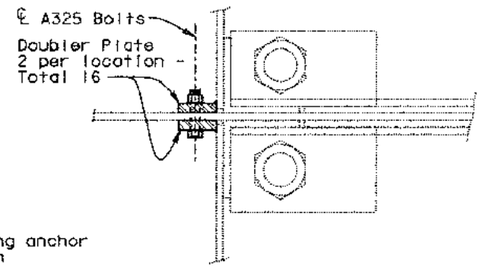
Note:
1. For location of Detail "J" and Section K-K see "Pier E4 Details No. 4" sheet.



DETAIL "J"

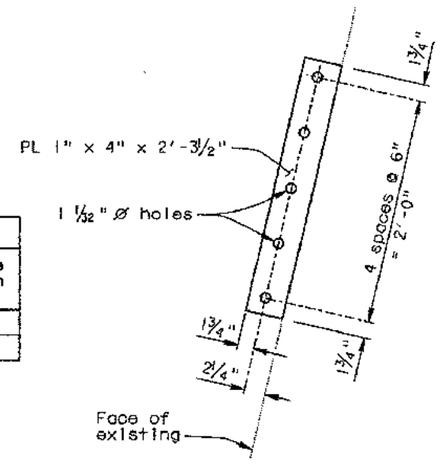
1" = 1'-0"

DETAIL "J"	
Number Per Location	Approximate Grip Length (inches)
40	2 3/4
60	3 3/4



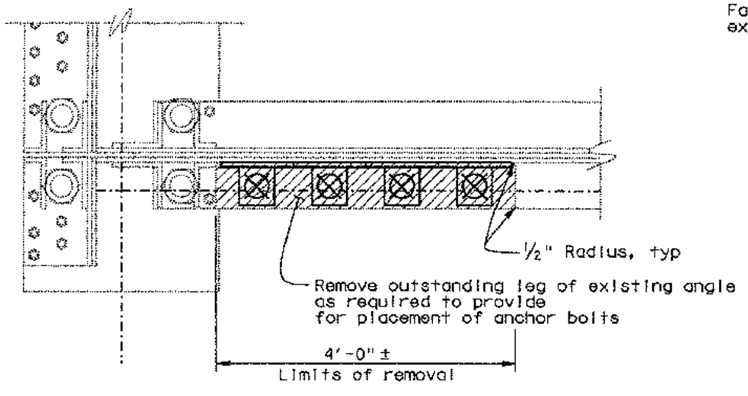
SECTION L-L

1½" = 1'-0"



DOUBLER PLATE

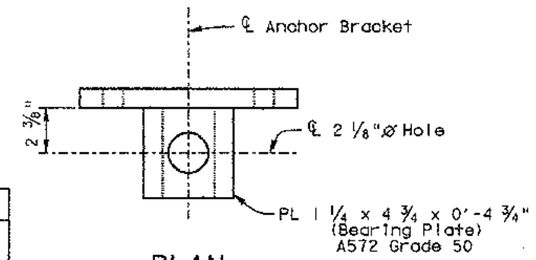
1½" = 1'-0"



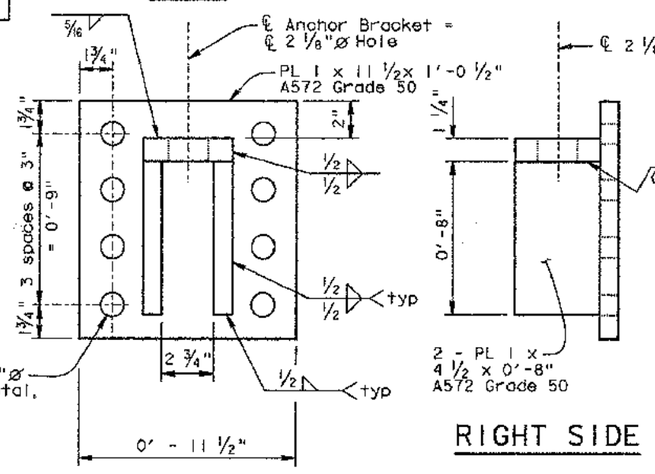
SECTION K-K

1" = 1'-0"

ANCHOR BRACKET DETAILS	
Number Per Location	Approximate Grip Length (inches)
256	4 3/4



PLAN



ELEVATION

RIGHT SIDE

ANCHOR BRACKET DETAILS

3" = 1'-0"

NOTE:
THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

LEGEND

- *Indicates existing structures.*
- ● *Indicates new 1"ø high strength bolts.*
- △ *Indicates existing rivets to be removed and replaced with new 1"ø high strength bolts.*
- ○ *Indicates approx. location of existing rivets*
- ⊗ *Indicates location of new Anchor Bolt*

INTERIM SEISMIC RETROFIT PROJECT
EAST BAY CANTILEVER TRUSS
SAN FRANCISCO-OAKLAND BAY BRIDGE
PIER E4 DETAILS NO. 5

DESIGN	BY J. LYNCH 3-97	CHECKED J. SUNDSTROM 5-97	
DETAILS	BY D.A. SANDERSON 3-97	CHECKED J. SUNDSTROM 5-97	
QUANTITIES	BY J. LYNCH 5-97	CHECKED J. SIEMERS 5-97	

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF STRUCTURES
STRUCTURE DESIGN
TOLL BRIDGE SPECIAL ANALYSIS

BRIDGE NO. 33-0025
POST MILE 1.15

CU 04
EA 043001

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES (PRELIMINARY STAGE ONLY): 2-27-97 | 6-26-97 | 6-27-97 | 10-29-97

SHEET 15 OF 18

DS 050 2/99 (CADD 9/95)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

USERNAME => trphlis
cepire45_09084723

DATE PLOTTED => 9-DEC-1997
TIME PLOTTED => 08:56

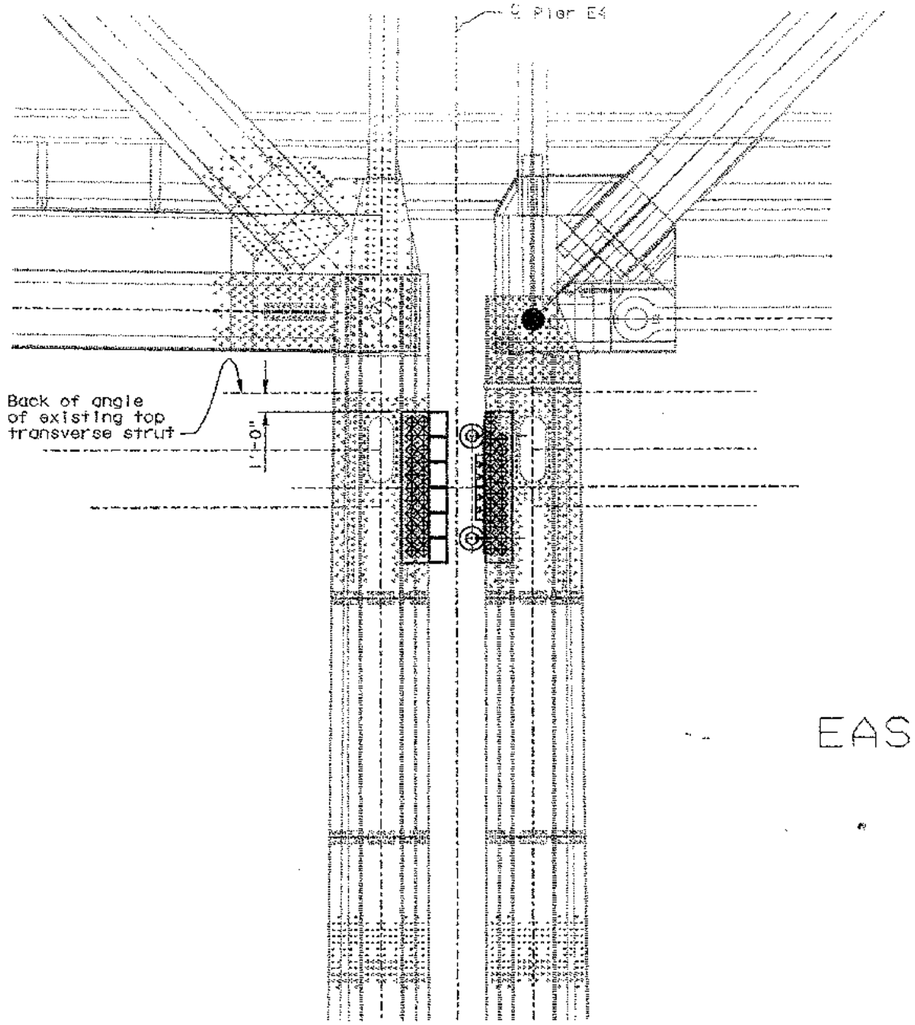
DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	SF, Ala	80	7.8/8.9, 0.0/1.1	120	205

REGISTERED ENGINEER - CIVIL
October 22, 1997

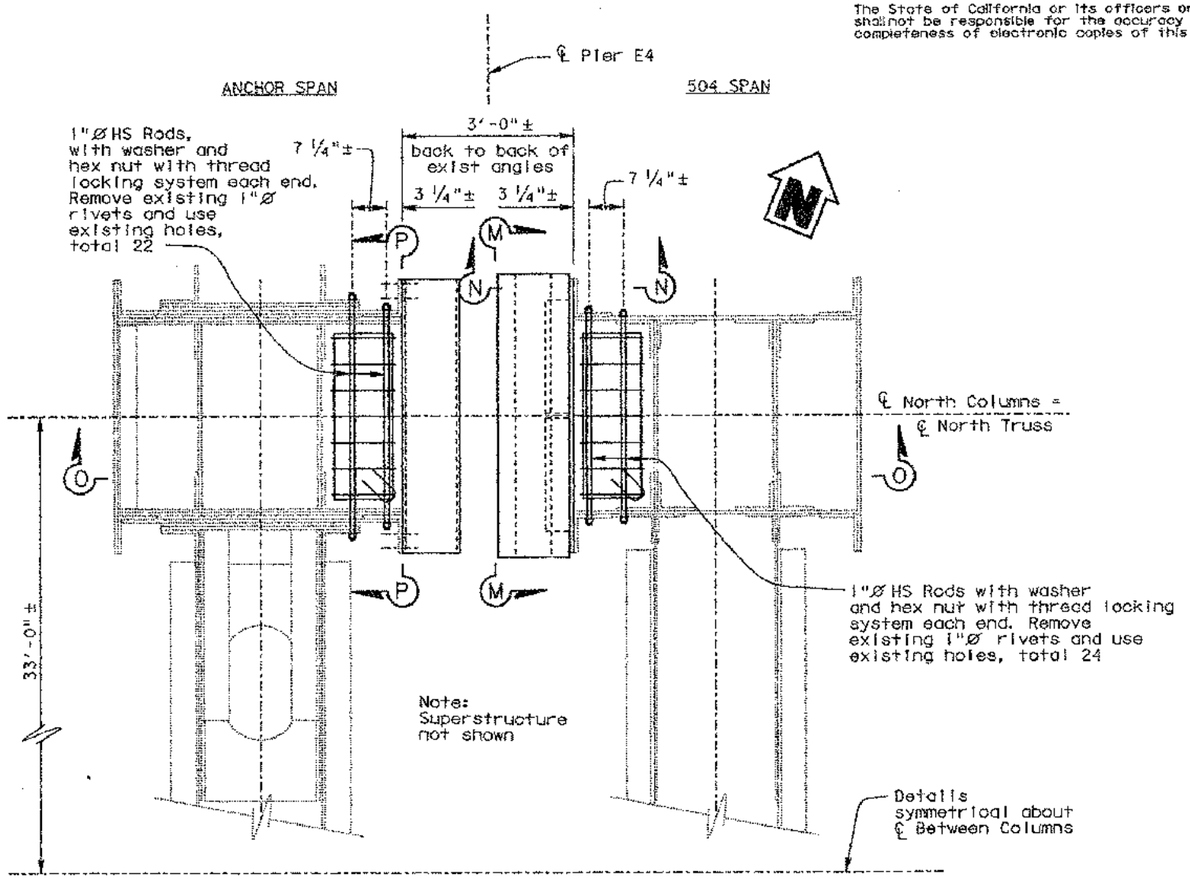
REGISTERED PROFESSIONAL ENGINEER — J. MACINTYRE — No. C 47564 — Exp. 12-31-99 — CIVIL — STATE OF CALIFORNIA

12-8-97
PLANS APPROVAL DATE

The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.



PART ELEVATION
1/4" = 1'-0"



PART PLAN
3/4" = 1'-0"

TOP OF PIER BUMPER DETAILS

Notes:

1. For Sections M-M & N-N see "Pier E4 Tower Bumper Details No. 2" sheet.
2. For Sections O-O and P-P see "Pier E4 Tower Bumper Details No. 3" sheet.

LEGEND

——— *Indicates existing structures.*

○ *Indicates approx. location of existing rivets*

⊕ *Indicates approx. location of existing rivet to be replaced with 1" ø HS Rod*

NOTE:
THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

DESIGN	BY J. LYNCH 3-97	CHECKED V. SUNDSTROM 5-97	
DETAILS	BY D.A. SANDERSON 3-97	CHECKED J. SUNDSTROM 5-97	
QUANTITIES	BY J. LYNCH 5-97	CHECKED J. SIEMERS 5-97	

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF STRUCTURES
STRUCTURE DESIGN
TOLL BRIDGE SPECIAL ANALYSIS

BRIDGE NO. 33-0025
POST MILE 1.15

INTERIM SEISMIC RETROFIT PROJECT
EAST BAY CANTILEVER TRUSS
SAN FRANCISCO-OAKLAND BAY BRIDGE
PIER E4 BUMPER DETAILS NO. 1

OS 050 2139 (CADD 9/95)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 04
EA 043001

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES (PRELIMINARY STAGE ONLY): 3-28-97 | 4-4-97 | 4-24-97 | 5-16-97 | 5-20-97 | 5-27-97 | 6-3-97 | 6-17-97 | 6-26-97

SHEET 16 OF 18

USERNAME => trrlcaf
oepire4b1_09075800

DATE PLOTTED => 9-DEC-1997
TIME PLOTTED => 08:06

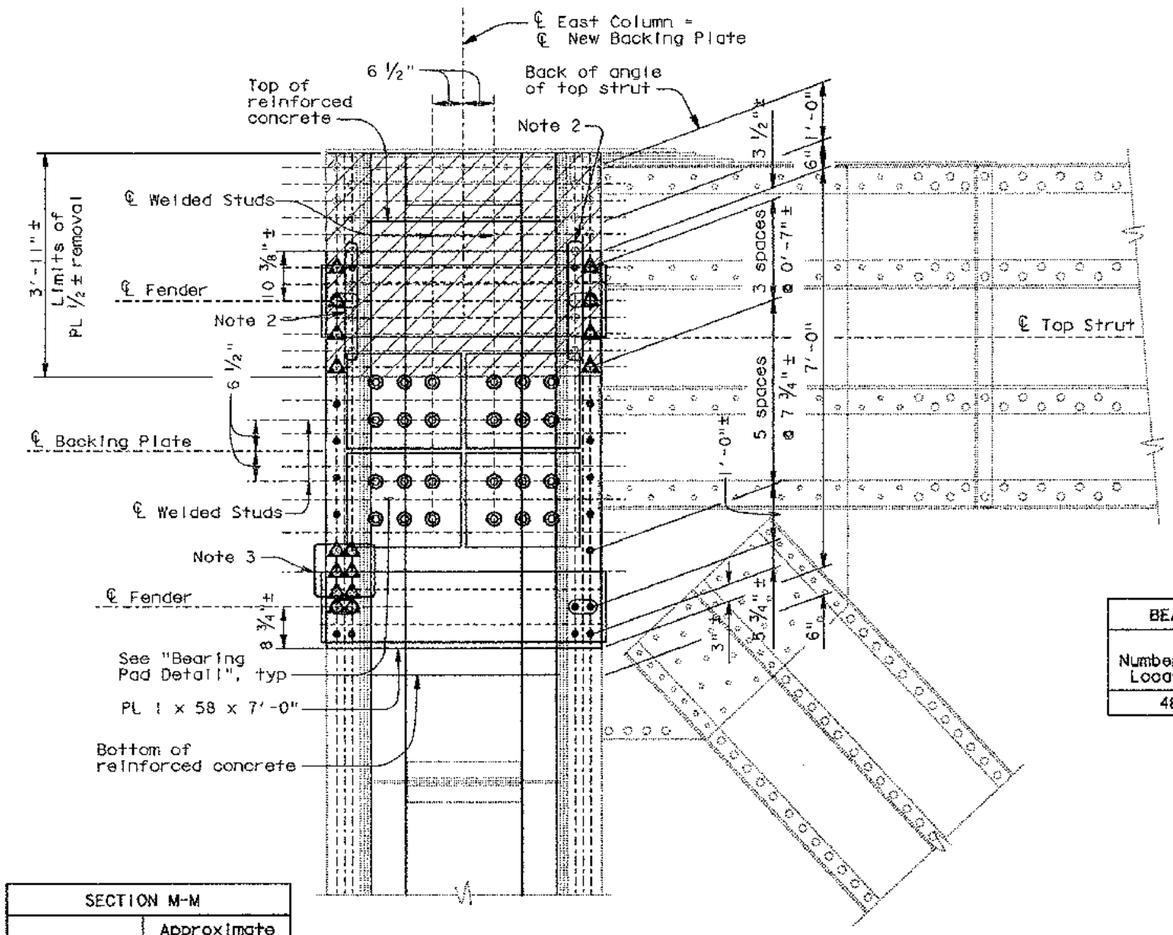
DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	SF, Ala	80	7.8/8.9, 0.0/1.1	121	205

REGISTERED ENGINEER - CIVIL
October 22, 1997

REGISTERED PROFESSIONAL ENGINEER — J. MACINTYRE — No. C 47564 — Exp. 12-31-99 — CIVIL — STATE OF CALIFORNIA

12-8-97
PLANS APPROVAL DATE

The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

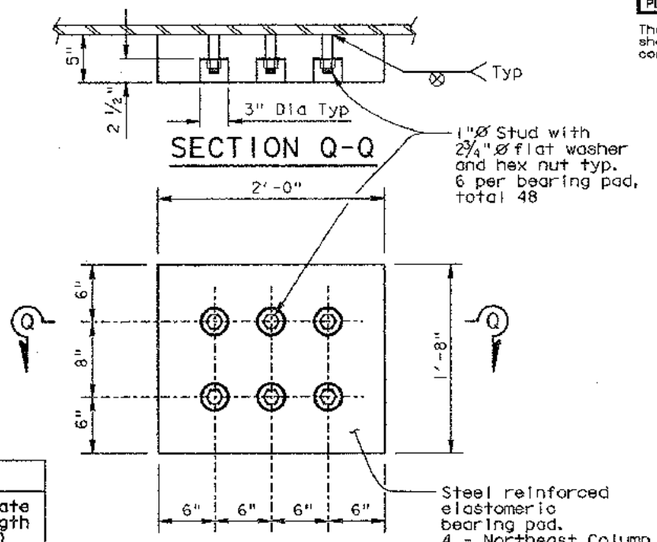


SECTION M-M

¾" = 1'-0"

SECTION M-M	
Number Per Location	Approximate Grip Length (inches)
42	1 3/4
12	2 1/4

Northeast column shown, southeast column similar by opposite hand

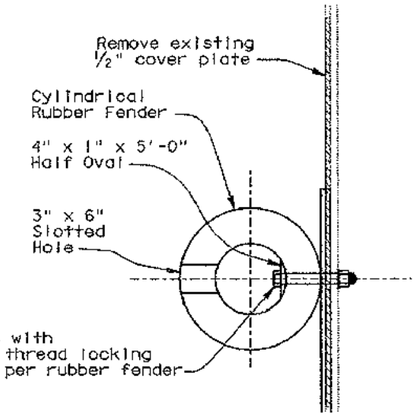


BEARING PAD DETAIL

1 ½" = 1'-0"

BEARING PAD DETAIL	
Number Per Location	Approximate Grip Length (inches)
48	2 1/2

SECTION N-N	
Number Per Location	Approximate Grip Length (inches)
16	6 1/2



SECTION N-N

1 ½" = 1'-0"

LEGEND

- *indicates existing structures.*
- △ *indicates existing rivets to be removed and replaced with new 1"Ø high strength bolts, unless otherwise noted.*
- ○ *indicates approx. location of existing rivets*
- ● *indicates new 1"Ø high strength bolts.*
- *indicates limits of removal of existing steel cover plate*

Notes:

1. For location of Sections M-M and N-N see "Pier E4 Tower Bumper Details No. 1" sheet.
2. Remaining existing rivets within the new backing plate location shall be removed.
3. Rivets supporting the maintenance platform shall be replaced with HS bolts through the new backing plate.

NOTE:
THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

INTERIM SEISMIC RETROFIT PROJECT
EAST BAY CANTILEVER TRUSS
SAN FRANCISCO-OAKLAND BAY BRIDGE
PIER E4 BUMPER DETAILS NO. 2

DESIGN	BY J. LYNCH 3-97	CHECKED J. SUNDSTROM 5-97	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION
DETAILS	BY D.A. SANDERSON 3-97	CHECKED J. SUNDSTROM 5-97	DIVISION OF STRUCTURES STRUCTURE DESIGN TOLL BRIDGE SPECIAL ANALYSIS
QUANTITIES	BY J. LYNCH 5-97	CHECKED J. SIEMERS 5-97	BRIDGE NO. 33-0025 POST MILE 1.15

DS 050 2039 (CADD 9/95)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 04
EA 043001

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES (PRELIMINARY STAGE ONLY): 2-27-97 | 10-2-97 | 10-29-97

SHEET 17 OF 18

USERNAME => trrichf
caltrans4b2_09075903

DATE PLOTTED => 9-Dec-1997
TIME PLOTTED => 08:07

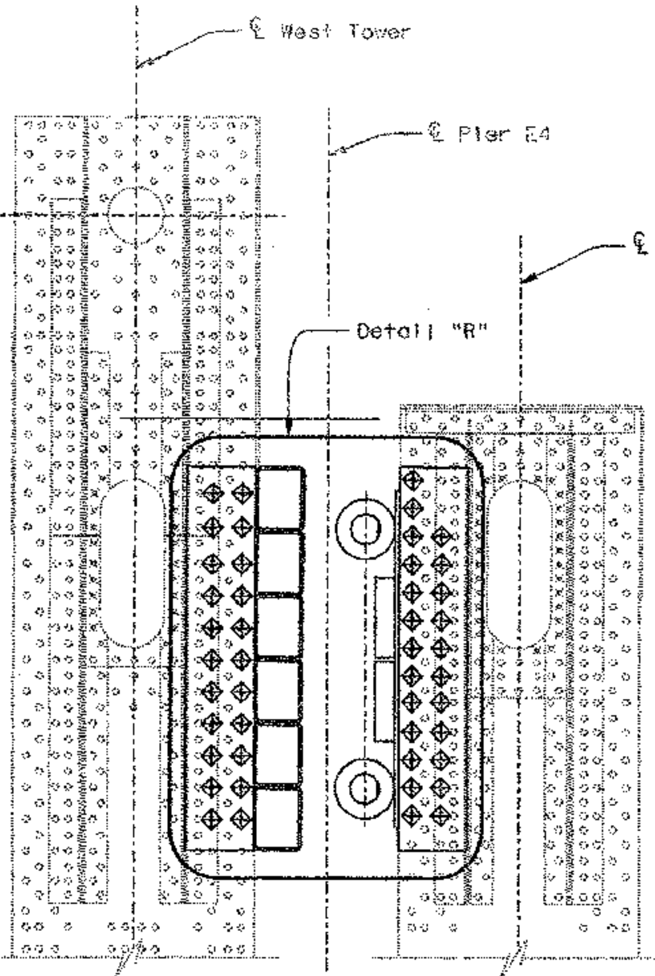
DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	SF, Ala	80	7.8/8.9, 0.0/1.1	122	205

James S. MacIntyre
REGISTERED ENGINEER - CIVIL
October 22, 1997

REGISTERED PROFESSIONAL ENGINEER, J. MACINTYRE, No. C 47564, Exp. 12-31-99, CIVIL, STATE OF CALIFORNIA

12-8-97
PLANS APPROVAL DATE

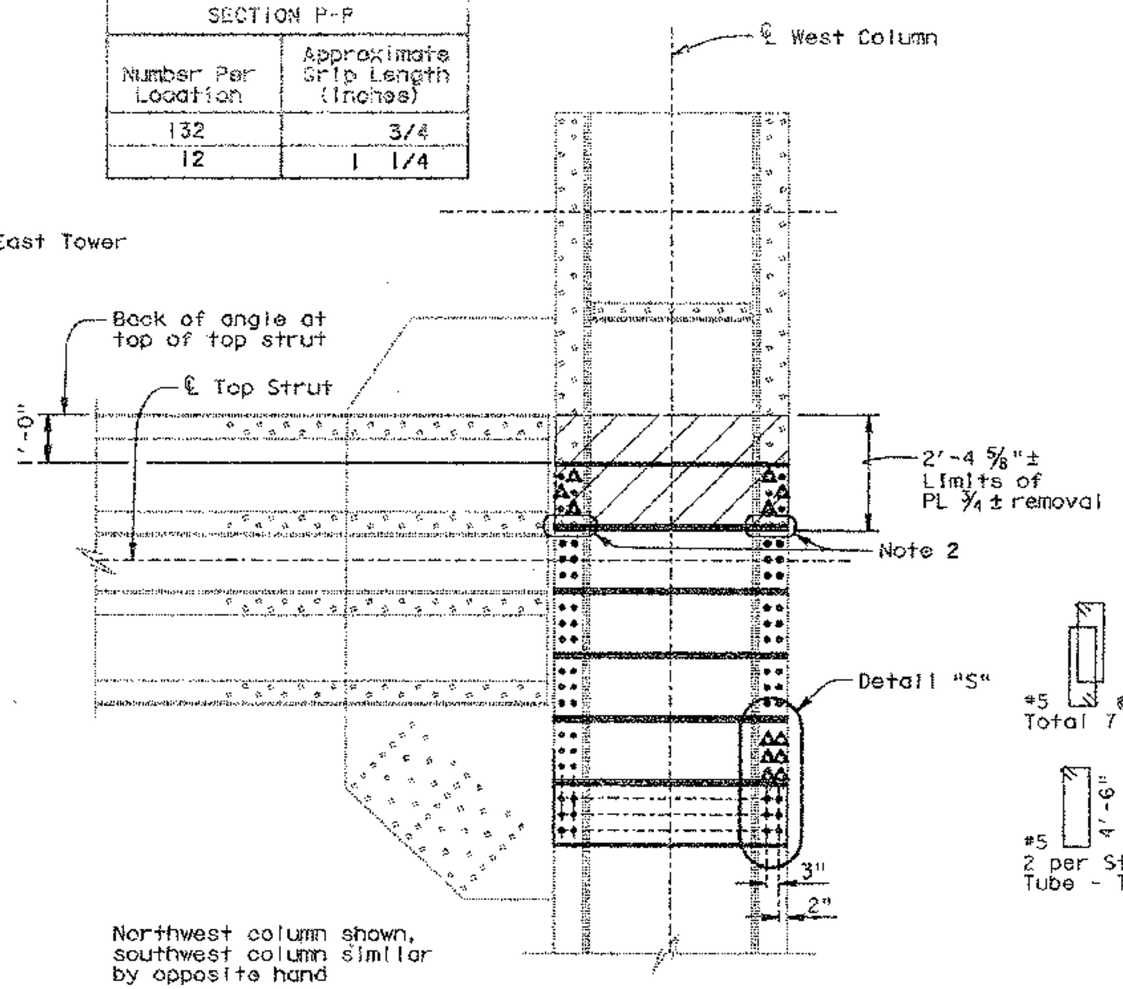
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.



SECTION O-O

½" = 1'-0"

SECTION P-P	
Number Per Location	Approximate Grip Length (Inches)
132	3/4
12	1 1/4



SECTION P-P

½" = 1'-0"

Notes:

1. For location of Sections O-O and P-P see "Pier E4 Tower Bumper Details No. 1" sheet.
2. Remaining existing rivets within the new structural tube assembly locations shall be removed.
3. Contractor shall provide full bearing between new concrete and new structural steel.
4. Rivets supporting the maintenance platform shall be replaced with 1"ø welded studs through existing holes.

LEGEND

Indicates existing structures.

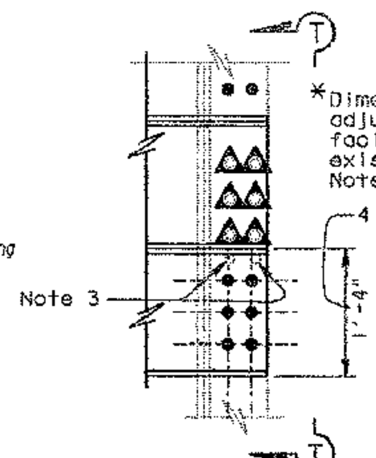
△ *Indicates location of existing rivets to be removed. Existing rivet hole to be reused for placement of structural tube assembly.*

◈ *Indicates new 1" ø HS Rod*

○ *Indicates approx. location of existing rivets*

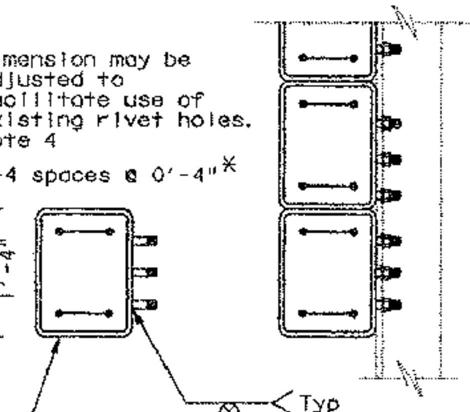
● *Indicates location of new 1 1/16" ø cored hole for 1" ø stud, unless otherwise noted.*

▨ *Indicates limits of removal of existing steel cover plate*



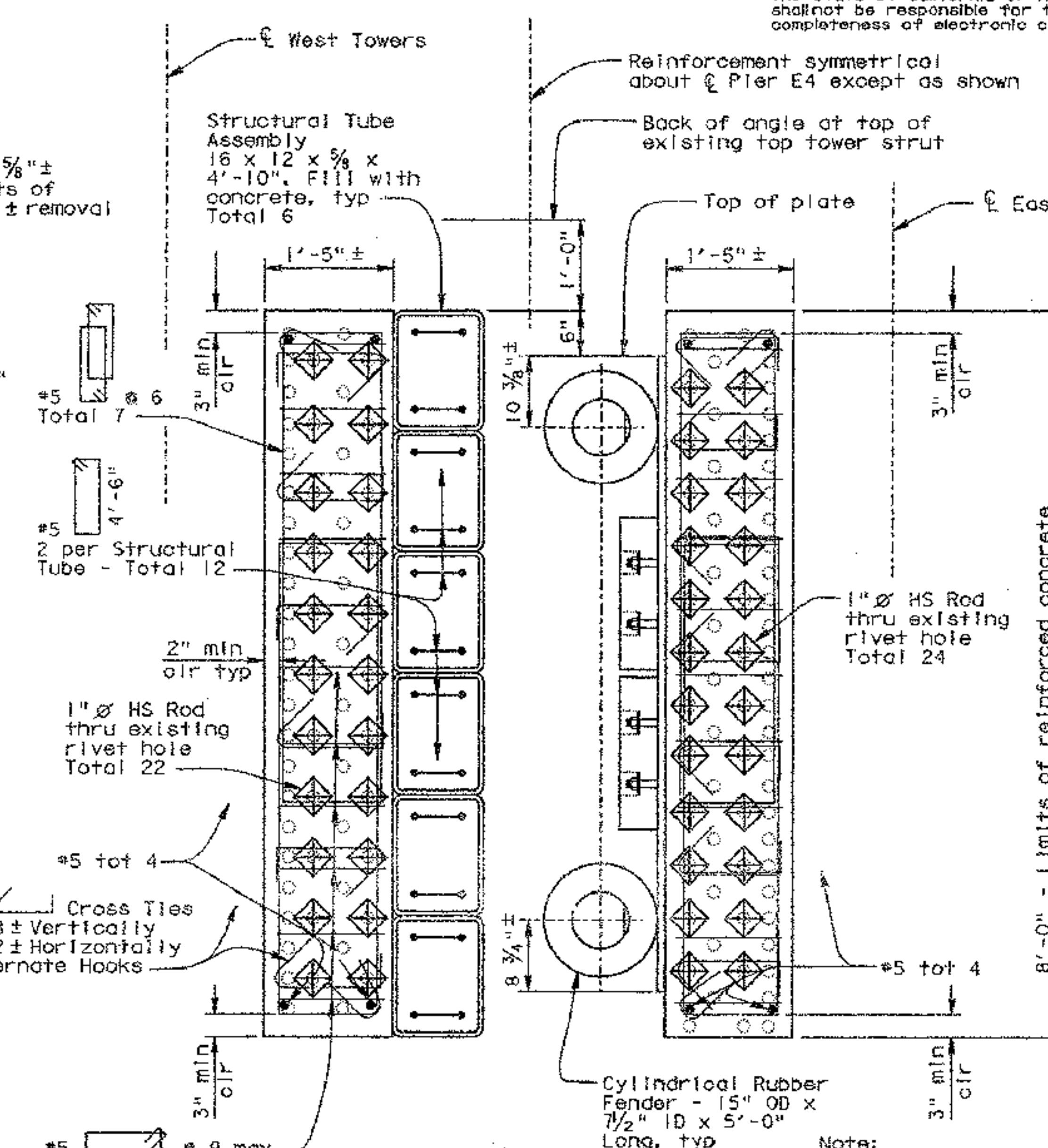
DETAIL "S"

1" = 1'-0"



VIEW T-T

1" = 1'-0"



Note:
Contractor may use new steel as forms for concrete. Provide 2" cover over all reinforcement except as shown.

North Tower Bumper shown, South Tower Bumper similar.

DETAIL "R"

1" = 1'-0"

NOTE:
THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

	BY	CHECKED
DESIGN	J. LYNCH 3-97	J. SUNDSTROM 5-97
DETAILS	D.A. SANDERSON 3-97	J. SUNDSTROM 5-97
QUANTITIES	J. LYNCH 5-97	J. SIEMERS 5-97

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF STRUCTURES
STRUCTURE DESIGN
TOLL BRIDGE SPECIAL ANALYSIS

BRIDGE NO. 33-0025
POST MILE 1.15

INTERIM SEISMIC RETROFIT PROJECT
EAST BAY CANTILEVER TRUSS
SAN FRANCISCO-OAKLAND BAY BRIDGE
PIER E4 BUMPER DETAILS NO. 3

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 04
EA 043001

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES (PRELIMINARY STAGE ONLY): 2-27-97, 3-6-97, 5-16-97, 5-23-97, 5-22-97, 5-20-97, 6-17-97, 5-26-97, 5-26-97, 10-23-97

SHEET 18 OF 18

DS OSD 239 (CADD 9/95)

USERNAME => trricht
cod1re4b3_09084648

DATE PLOTTED => 9-Dec-1997
TIME PLOTTED => 09:33